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ABSTRACT

This article sets forth a hypothesis and methodology for the analysis of culture and specific cultural systems. Viewing man as a mammal, a member of society, and a participant in culture, the authors construct a framework of culture analysis which examines the content, structure, integration, and configurations of culture; and syntheses of cultural systems. The establishment of a frame of reference which permits an analysis of any culture is noted to be the principle purpose of this article. A bibliography and schematic tables are included. (RL)

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THE ANALYSIS OF CULTURE

HALL and TRAGER

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THE ANALYSIS OF CULTURE

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Washington, D.C.
1953

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Prefatory Note

This paper was completed in nearly its present form in October, 1952. A brief outline of it was presented as a double talk by the authors at the meeting of the American Anthropological Association in Philadelphia in December. Since then considerable additional work has been done, and section 5 of the present version incorporates some statements about these new developments.

We are working continuously on the various leads that a programmatic paper of this kind suggests. One of these is the discovery of the basic components of various kinds of cultural activities. Thus there is one component each for space and time. For the sexes there are two. In terms of the theoretical elaborations and relationships presented here it appears that there may then be similarly two, or four, or some other number of components for other cultural systems. In so far as we have tested these ideas, they seem to work, but obviously the presentation of them is a separate task. Again, the real basis of definition of formal, informal, and technical systems has been an object of inquiry. Here we have had considerable success, leading to the possibility of a very thorough analysis of each basic focal system into sub-systems having different kinds of basic units and connected with each other in systematic ways. This too will have to be the subject of separate papers.

Pressure of time has made it impossible to do a complete editorial checking job on the paper as a whole, so that there must still be many inconsistencies. This is especially true of section 6 and the conclusion. It has seemed desirable, nonetheless, to reproduce the material for discussion at this time.

We have benefited throughout our work from discussions with colleagues, especially Henry Lee Smith, Jr., and Edward A. Kennard, and since the original version also with Donald H. Hunt.

Washington, D.C.
May 1, 1953

Edward T. Hall, Jr.
George L. Trager

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1. INTRODUCTION

Improvements in communication networks in their broadest sense, and the creation of weapons for destruction which can, by means of our improved communication, be delivered anywhere on this globe in a matter of hours, have so shrunk the world that most thinking men are by now genuinely concerned with that complex series of events known as culture.

The pressure for an increased knowledge of cultures was a concomitant of the global character of World War II, and it was at this time that anthropologists and linguists were employed on an unprecedented scale to equip us better to deal with cultures as alien to our own as the Japanese. This meant that linguists and other anthropologists suddenly found themselves precipitated from the world of the exotic to the very practical world of modern warfare, where lives depended upon the degree to which they were able to interpret correctly the relationships between cultures. The showing of the linguist, for reasons which will be indicated below, was more tangible than that of the cultural anthropologist, who of necessity dealt in generalities and often experienced difficulty in communicating his insights to those who were supposed to act upon them[1].* These difficulties can be attributed in part to the newness of our discipline, the complexity of the data with which we deal, and certain historical developments having to do with the relationship of the social to the physical sciences. The extreme prestige of the physical sciences was sufficiently alluring to cause a good many social scientists to borrow, in so far as they were able, the techniques and methodologies of the more established disciplines. There was of course a certain ethnic determinism in this, in that Western European culture generally is one that emphasizes quantification in the whole matter of everyday living. For instance, recent experiments with Americans scheduled for service overseas indicate that in such diverse fields as housing and animal husbandry the first things the American is wont to ask about have to do with quantities and distribution.

There have been those who have questioned the validity of preoccupation with measurement in the field of human and intercultural relations. Whorf (a chemical engineer and a scientific linguist) pointed up cogently some of the differences in this regard between events in chemistry and physics and events in culture (in this case linguistics)[2].

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*See References, p. 59.

Turning now to cultural anthropology, it can be said that its most important theoretical contribution to the field of intercultural relations has been what is generally known as 'cultural relativism', which means in effect that man is capable of satisfying his biological and culturally derived needs in a variety of ways. The anthropologist makes no value judgments as to which of a number of ways is better, and only goes so far as to say that cultures are different and that the differences should be respected. He has not, up to this time, been able to demonstrate in other than rather inadequately descriptive terms the basis for the different elaborations of culture. That is, he has been unable to reduce to a physical or biological base the difference between cultural events. He has lacked the basic units or building blocks of culture and a frame of reference which would provide such a physical basis. His historically developed frames of reference had the added disadvantage of restricting the description of the data to what seemed to be a single order of events. However, cultural behavior clearly involves more than one level, a point, as will be seen, which is basic to the analysis of culture.

Our first insights in regard to levels did not come from the social sciences as they are usually defined, but from a branch of medicine. It remained for Freud to establish that human behavior included areas which were manifest through slips and dreams but were not in awareness. He relegated such activities to the unconscious, a proposition which is still generally accepted even in analytic circles.

Paralleling, but much later than Freud, Kluckhohn[3], elaborating an original insight of Linton, postulated the culturally analogous aspects of the unconscious which he called covert culture, or that which is hidden, and to which he relegated by far the largest portion of human behavior.

The concepts of the unconscious on the individual level and the covert on the cultural level have certain serious drawbacks for the scientist, if for no other reason than the semantic implications of these terms, signalling that neither can be directly analyzed but can only be inferred. Harry Stack Sullivan[4] provided the much needed re-definition of the unconscious into what he termed dissociated behavior, thereby taking the hocus pocus out of a tremendous chunk of human behavior on the individual level. Later Hall suggested[5] that dissociated behavior could be demonstrated on the level of culture, that dissociated acts were to a large degree culturally patterned, and that there was a difference between culturally patterned dissociated behavior and what Kluckhohn had termed the covert in culture. (A term which better fits the situation than covert is implicit, i.e., that which is so well learned and so universally shared that it is taken for granted.) All of which added up (until a year ago) to events in culture which occurred on three levels, i.e., overt (in awareness and readily verbalized); implicit (shared and taken for granted but not readily verbalized); dissociated (out of awareness but readily observable by others, and having a 'not me' quality, and hence difficult to change).

While the cultural anthropologist was slowly learning that it was necessary to distinguish between events occurring on different levels, parallel developments were taking place in the field of linguistics, developments which ultimately shed more light on how the scientist goes about dealing with cultural data than anything which has been achieved in the rest of the social sciences. The linguist had the advantage of dealing with data about which it was possible to be highly precise. He was also able to isolate out his building blocks, the basic units of the cultural systems with which he deals (phonemes and morphemes).

Modern linguistic science in America owes most of its exactness to the foundations laid by Boas[6], Sapir[7], and Bloomfield[8]—all three of whom worked in other fields of anthropology as well. Their students, along with others working out of the older European philological tradition, elaborated both theory and practice. Central to this development was the firm anchoring of linguistic analysis in the physical and biological determining data.

Phonetics for most American linguists is not an end in itself, but a base for further analysis[9]. Phonemics becomes the next level, and is not a philosophical exercise, but is firmly based on the phonetic events that are observable[9, 10]. Morphemics follows, completing the analysis of linguistic structure as such[10]. Only then does it become possible to examine the relation of the language to other cultural events, as Whorf has done[11]. The levels of prelinguistics, microlinguistics, and metalinguistics[12] are seen as clear and necessary delimitations of the total field, and as the basic starting places for further observation and analysis.

It was from these bases that the present authors started their combined efforts to create a framework by means of which it would be possible not only to keep the various levels of culture separate, but which would show cultural events in their proper relationship to each other and in such a way that behavior across cultural boundaries could be equated. We proceeded on the following assumption:

A. Language is a self-contained system of culture (microlinguistics), firmly anchored in the biological organism (prelinguistics), yet reflecting and reflected in the rest of culture (metalinguistics).

B. Culture comprises many systems, subject to analysis in terms analogous to those used for language. This implies that once the systems have been identified, it becomes possible to isolate out the smallest significant units of any given system, and that until this has been done very little of ultimate significance can result from the social sciences. A case in point is the recent experience of linguists in working with so-called 'vocal qualifiers' (loudness, rasp, whispering, and others). It appeared at first that these were part of the macrolinguistic system[12]. As such they were hard to handle, and it was difficult to isolate them, to describe them, and to delimit their functioning; they were clearly not microlinguistic (thus differing from stress and pitch), but they also did not fit well into metalinguistics (where style, connected discourse, and meaning are dealt with). It finally became clear that these noises constituted a communication system in their own right (see 2.3), and once this was recognized it became possible to analyze them and study their functioning.

C. Like language, the other systems would have to be firmly anchored in the biological organism.

D. What the anthropologist and other social scientists had been describing were complex events that contained many systems. That is, such things as kinship, war, religion, and the sociologists' rubrics of social disorganization, the family, rural and urban sociology, etc., did not constitute valid starting points for cultural analysis.

In addition to language, it was possible quite readily to identify four other systems firmly based on mammalian behavior. These were:
(1) social systems (with the peck order and its equivalents as a base)
(2) and (3) time and space systems (derived from the cyclic and territorial activities of life forms)
(4) material systems (highly elaborated by man but expressed for lower forms by such material extensions as birds' nests, lairs, burrows, beehives, spider webs, and the incipient artifaction of anthropoid apes).

Research on the time-space systems of our own culture showed not only that we were correct in our original premise that these constituted valid systems, but that one could be highly specific, could isolate out the basic units for a given culture and equate them across cultural lines. It also brought out additional points which we had not at first suspected: that is, that there were formal, informal and technical elaborations of each[13]. This will be developed below; it has already proved exceedingly helpful in enabling us to verbalize events which had until now been felt or experienced but not expressly stated.

2. THE CONTENT OF CULTURE

The problem of analyzing the levels of culture having been set, it becomes necessary to examine the ways in which answers can or may be found. It will be desirable to get as full a description as possible, in order to determine what levels there are, how they relate to each other, and how they are developmentally realized.

Since the beginning of any kind of anthropological studies, observers have grouped their materials under rubrics of various kinds, and have classified the rubrics in some sort of order. Lay observers and reporters, explorers, travellers, and the like, have given accounts of the material culture of peoples, of religious activities, of ethical concepts, of marriage customs and family life, of economic activities, of child training, and so on. Later, professionals have compiled trait lists or have written monographs, with chapter headings on kinship, social organization, subsistence activities, etc.

All the reports (almost exclusively by observers who were members of Western cultures)—lay and professional—show a basic sameness. People seem to have observed much the same things everywhere, and peoples seem to engage in much the same activities. But the analyst of culture is always suspicious: perhaps the sameness is because of the preconceptions of the observers. The only way to check is to discover a base firmly rooted in biology, in accordance with the general principle of reduction in science, and to see what results can be obtained.

We shall examine briefly previous attempts to state the content of culture, and then present the biological base from which we derive our own analysis. After that, we shall elaborate the cultural activities that stem directly from the biological base.

2.1. Accounts of travellers and explorers—from Herodotus on—can be characterized by saying that the observer nearly always limited his reports to things that were striking in one way or another: such and such a group had such and such strange customs, or else—marvel of marvels—such and such savages had customs just like the civilized group the reporter belonged to.

When we get to modern systematic accounts we find, on close examination, that they are not basically very different from the ones just alluded to. True, every anthropologist, if asked to give a list of the topics that need to be included, will come up with something like the following: the people and their location (or, the history of man—in a general work), language, economic life, social organization, subsistence activities, material culture, religion, the life cycle. On looking into a general work on anthropology, or a specific monograph, we find such items used as chapter headings; but we also find large variation in the kinds of things under each heading, the order of presentation varies, and the subjects selected for elaboration are those the author was primarily interested in or was struck by (numerous references could be cited to substantiate this comment; any general reading list for graduate students, however, will contain enough works to validate these assertions).

The classification and arrangement of the subject matter of culture becomes pressing when a project like the Cross-Cultural Survey is undertaken. The systematic listing worked out there includes the following in its list of main headings[14]: geography, human biology, behavior processes and personality, history and culture change, language, communication, food quest, animal husbandry, agriculture, food processing and consumption, clothing, adornment, exploitative activities, building and construction, energy and power, (various) industries, machines, tools, property, exchange (and marketing and finance), labor, travel and transport, living standards, recreation, arts, social stratification, marriage, family, kinship, community, territorial organization, law, war, social problems, health, death, religion (several divisions), numbers and measuring, exact knowledge, sex, childhood, education, etc. It is not our purpose to criticize this listing or any other specific work. But it is clear, we believe, that in such a list there are many levels of complexity treated as if they were analogous or equivalent, and that the order of arrangement has little logic except in a most general sense. There are also, as one soon finds out, large gaps in the elaboration of subheads.

In our own work, we began with the principle that a physical (biological) base must be found for all cultural systems. Our first set of large systems was this: creation of patternment, material culture, language, relations between persons, institutionalization, motion, territoriality, tropisms and needs. Of these, we felt considerable confidence about language, material culture, and territoriality. Linguistics has developed to the point where the nature of language as a cultural system—learned and shared behavior par excellence—is beyond doubt. Systems of material culture also come out clearly (such rubrics as housing, tools, weapons, clothing may serve as reminders); but these systems seemed somehow to be conglomerate and much less neatly ordered than is language. Territoriality is evident in many organisms, and it seemed proper to consider it as a base for fundamental cultural development. Experimenting with it, we saw that many motion activities, and many tropisms, were part and parcel of the overall matter of territoriality, but also of other—as yet unidentified—activities. We also became aware that at least in Western cultures temporal or cyclical activities are intimately tied in with territorial ones; cross-cultural information is at hand, however, to show that this is not so everywhere, so that time-limited activities seemed to be appropriately separated as basic cultural systems. Examination of motion activities further showed that there exist communicative patterns—kinesics[15]—which accompany and are tied in with language into an overall communication system. At this point we saw that the other sets we had named were not all of the same order as those so far examined; some were more complex, others less so and on different levels of organization. Patternment seemed to permeate everything, interpersonal relations were partly aspects of communication, partly reflections of other things. Institutionalization was evidently too broad a term to mean anything. Tropisms and needs vary too widely in different societies to be a useful guide to analysis at this point; one of the authors had been working with such a rubric for some time, but the only productive systematization that resulted was in the area of defense activities.

It also developed that a basic system should be characterized by relatively easy recognition of primary units in its organization, and should involve areas of deep feeling. Taking space and time as subjects for experimentation with several groups of persons (Americans) being trained for technical service abroad, we were soon able to discover measurable items, and to characterize activities and reactions by such terms as traditional or formal, as against informal, and technical as against both. Various depths of emotional reaction were discovered to be associated with these three types of activities.

The successes and difficulties with the general list suggested that we were on the right track. After some further attempts at ordering the systems and elaborating them, we arrived at the basis presented below.

2.2. The activities of living matter are functions neither of chance nor of design, but of direct and dynamic interaction of the organism with its environment[16]. This interaction is specialized or limited by the presence of other organisms of the same kind, in association. The total complex of organisms engages in a search for the means of subsistence.

Subsistence produces growth, and the perpetuation of the species is then carried on by means of the various types of *reproductive activity*. All these interactions and their specializations take place in terms of delimited *territories* and at cyclically determined *times*. Up to this point what we have said is true for all living organisms on earth, plant or animal. For animal organisms there are further kinds of specialization. At the lower levels, these may be summed up as a general kind of *protective adaptation*. With the development of the neocortex in the vertebrates, *learning* becomes increasingly important as an adaptive mechanism, primary to *perpetuation*. (Learning, for our purposes, is subsumed under the terms *durable change*, *modifiability*, and the like, as used by the specialist working on a pre-cultural level.) Among mammals and birds perpetuation activities are further broken down to give a series of activities that may be called *play*, with perpetuation specialized into what may be called *defense* (of the individual and the group). These higher animals also practise *exploitation* (use of materials) in constructing lairs, nests, and the like. The primates, especially the anthropoids, begin to elaborate the latter into something approaching artifaction.

The list of specializations of the life activity of an organism seems exhaustive. Any more specific activity can be subsumed under one of these headings. Furthermore, the order in which we have presented them seems logical and necessary, in short, natural. The essence of the phenomenon we call life is interaction—in the widest sense of the term; the higher the organism, the more complex the interaction is. It becomes physiologically elaborated by means of the development of a nervous system, and there arise the special movements and cries of animals by means of which they communicate. Communication results in association, the consequence of the presence of other organisms. Subsistence is clearly subsequent to the presence of a group, and limits the size and kind of group. In the phylogeny as well as ontogeny of living beings, *bisexuality* develops as a specialized adaptive mechanism. Space and time limitations are present constantly, of course, but are significant in this context only after the preceding activities are established. For the higher animals, learning precedes play. And play takes place before the organism learns to defend itself—playing continues until someone gets hurt.

2.3. Taking our list of basic behavior patterns and going to the level of human culture, we began to look upon them as foci for the development of cultural activities, or, put in another way, for the elaboration of cultural systems. The process of analysis involved consideration of the general nature of the focus, characterization of the specifically human realizations of it, and listing, at first haphazardly and as mnemonic devices only, of various systematic behavior sets grouping around the focus. The theoretical basis for the kinds of elaborations suggested below is discussed in 4 and its subsections.

As already suggested, interaction as such, on the human level, involves the communication systems. Of these, language, a specifically human development, is at the base of all culture, and occupies the position of most importance. It is accompanied everywhere by a kinesic system that is itself highly elaborated, on levels of organization analogous to those in linguistics. Recent evidence (as mentioned) indicates that the use of what has been called 'vocal qualifiers'—laughing, crying, overloudness, drawling, whispering, and others—constitutes a third kind of communication system. In this connection it should be noted that the order of development and primacy of the three systems is almost certainly the opposite of the order of presentation just given. Of course, the actual development was and is intertwined throughout, historically and in the individual. The communication systems involving writing, pictures, and other kinds of material symbols are all on subsidiary levels of development, as will be seen later.

Association is the focus around which develop the activities and systems that can be labelled society. The term must be understood in a wide sense, embodying such special elaborations as class systems (including classlessness), kin and caste, and systems of control (including government). These systems must be distinguished from those based on marriage and family arrangements, which, as will be seen below, arise at other points in the configuration. The number of elaborations that may exist for social structure has not been determined by us, but we postulate that they will cluster around the three kinds of systematic elaborations mentioned.

Subsistence as a focus of activity, taken by itself, gives rise to the elaborations that may be summed up under the term work. The systematic elaborations under this heading will be found to cluster as follows: there is the formal work done by the members of the group in connection with the primary economic organization—'earning a living'; then there are the routine day-to-day maintenance activities (housework, mowing the lawn, etc.); and finally there are the occupations and professions (which involve varying degrees of technical proficiency).

Bisexuality is the focus for the whole activity of human beings as men and women—the sexes. Systematic elaborations deal first of all with cultural patterning of bisexuality as an unstated ideal—the notions of *masculinity and femininity*. Then there are the activities in terms of the biological facts of *sex*. Lastly we have the elaborations that spell out or prescribe norms and technical limitations on what men and women do.

Around territoriality cluster elaborations of space which involve the necessary adaptations to given, and, as it were, unchangeable spatial situations (such as mountains, deserts, rivers, and the like). There are in addition the elaborations that deal with defining such notions as near and far, crowded and uncrowded, large and small, and so on—the feelings that the group and the individuals in it have about necessary spatial arrangements. Besides these, there are also the elaborations that involve the actual measurement and marking off of various types of *boundaries*.

Temporality as a focus of activity is the starting point for elaborations of *time*. There are the reactions to the passage of time—how the *sequence* of events is conceived, the significance of the fact of becoming later, the awareness of recurrence. Then there are the elaborations of natural and derived *cycles*—the daily cycle, the lunar, the seasonal, and so on. And finally there are the systematic elaborations concerned with the measurement of time—calendar systems, time-telling systems.

Learning is the focus of activity which, in and of itself, is elaborated as the systems of *enculturation*. These may be put into three groups: first, those that have to do with direct imitation of and correction by the models provided by the culture—'*rearing*'. Second are those learning activities which involve the selective study and observation by the individual of the behavior of others and result in his unique adjustment to the culture. Third are the institutionalized systems that can be called *education*.

The focus of activity that we have called play is elaborated as systems of *recreation*. These involve the characterization of what is and is not supposed to be *fun*; deal with *playing*, and result in *games*.

The defense activities are, in and of themselves, summarized by the term *protection systems*. There are elaborations dealing with the delimitations of what is or is not appropriately done for the preservation and defense of the individual or the group; here are included taboos, religious attitudes, traditional health measures, attitudes of prudence and caution. Then there are elaborations involving the individual's or group's preservative adaptations to potentially hostile forces in the given environment. In addition, there are the systems of fighting, ritual, and healing that deal with and fend off the hostile forces.

Exploitation results in the systematic elaboration of many *material systems*. There are those that involve the *contact* with the environment (leading to comfort, fitness, and the like). Then we have the systems of motor habits involved in creating and using materials. Finally there are the systems that may be called technics.

3. THE STRUCTURING OF CULTURE

It has been shown how we arrived at what we now designate as the ten basic focal systems of culture (communication, social structure, labor, etc.). It will be remembered that unless a given system is anchored in or based on the activities of the biological organism it has no primary validity. The basic focal systems have been described as the result of a focus of activity reflected in or seen through itself. This led to the conclusion that further elaboration of the analysis would be achieved by considering each focus as reflected in each of the others; the cue was provided by earlier work in delimiting metalinguistics, which was done by examining a communication system—language—in the light of all other cultural systems.

With these assumptions as a base, the next step was the creation of a two-dimensional schematic representation in which it was possible to show each focus played through, as it were, all the other foci.

3.1. A chart was now created (Table 1), designating each focus of activity adjectivally across the top, these being called secondary foci, and nominally down the left margin as primary foci. The primary foci are: interaction, association, subsistence, bisexuality, territoriality, temporality, learning, play, defense, exploitation. The secondary foci are: interactional, organizational, economic, sexual, territorial, temporal, instructional, recreational, protective, and exploitational. These are numbered 0 to 9, the primary ones as 0-, 1-, 2-, etc., the secondary as -0, -1, -2, etc. The intersection of each focus of activity with itself (00, 11, 22, etc.) is a basic focal system (already presented above in section 2.3); all other intersections designate systemic foci.

Next came the consideration of the types of activities which fall into the 90 squares which are the systemic foci (see Table 2). For example, organizational extensions of interaction (01) constitute status and rôle[17], economic extensions of interaction (02) are exchange. Temporal patterns of association (15) include such items as age groups; organizational patterns of bisexuality (31) include the various systems of marriage, whereas the economic results of temporality (52) are the different types of economic cycles, and so on.

It did not take long to make the first designation of activities indicated by the 90 points of intersection. It was at this point that we realized a fact which is crucial to the rest of our discussion, namely that this is more than an organizational scheme of the ordinary sort. Although activities in each systemic focus were not always at first uniformly and correctly assessed (in part due to the influence of the English language and American culture on the writers, and in part to the newness of the device), two things were noticed.

First, systemic foci with identifying numerals in which the first number was smaller than the second tended to deal with activity applying to the individual, while those with the first number larger dealt with the group. For example, the instructional patterns of association (16) are teachers and learners. Their reciprocal, organizational patterns of learning (61), is learning groups and educational institutions. Stated differently, those systemic foci which occurred above the diagonal formed by the progression of basic focal systems, dealt with individual activities, those below this line with group activities (Table 2).

Second, related activities tended to appear next to each other in the table. It should be emphasized that the table was not designed with this in mind; there was no preconceived idea that things would work out as they did. It became apparent that here was a mechanism which checked itself, i.e., in which errors could be detected and eliminated. As the work progressed and insights increased the self-checking nature became more evident.

In order to test this, the order of activities in the primary and secondary foci was changed and it was discovered that the original order was basic and critical; without it, the device lost its self-checking characteristics and items which were really related no longer appeared together. All possible rearrangements were tried. The basic order, derived both phylogenetically and ontogenetically, was the only one which proved workable. We are aware, of course, that in the elaboration of specific cultures, the basic focal systems have been differently weighted and ranked, so that the impression of a different order is often given. A last point in regard to order brings out the limitations of a two-dimensional scheme; the item labelled 'exploitational extensions of interaction' (09), which includes the use of telephones, radios, automobiles, books, etc., appears at the upper right corner of the table; it is, however, obviously quite close to 'interactional extensions of exploitation' (90), which is its reciprocal, appearing at the lower left. This matching of reciprocals constitutes a further check. It also indicates that the primary foci might well be plotted on a sphere or some other three-dimensional model. When this is done, 09 may actually be made to fall next to 90, 01 next to 10, and so on. The transition from a series of relationships indicated two-dimensionally to those indicated when the same data are worked out in three dimensions is a basic shift in the level of analysis. This would have to be treated separately.

A rapid glance at Table 2 shows several things:

A. The labels assigned to systemic foci are worded in various ways; there are (1) one-word characterizations such as *exchange* (02), *community* (10), *privacy* (48), etc.; (2) phrasal characterizations such as *How the sexes interact* (03), *Local group rôles* (14)[17], *Sexual division of labor* (23), *Men's and women's territories* (43), *Community lore* (60), *Economic patterns of defenses* (82), etc.

B. In different areas of Table 1 (see also 5 below) the characterizations of the nature of the relationship of the secondary to the primary foci are variously stated; using X for the secondary and Y for the primary, the formulas are: X extensions of Y, X patterns of Y, X results of Y, X conditions of Y, X'ly determined Y.

In regard to A above, the label in the box is in many cases a mnemonic device to remind the user of the type of activity encompassed by the intersection of two foci. This applies *particularly* to those labels which are phrases. In these instances the following is usually the case:

1. Our language does not have a single word which describes the particular focus of activity in question.

2. There may be a word, but the writers, either because of insufficient experience with this frame of reference or with the particular category in question, have not yet been able to find an appropriate one-word reminder. For instance, *Men's and women's territories* (43) may be designated by a single term in other languages.

In cases where one or two words appear these will be of three types:

1. A word or phrase provided by the language and understood by all, such as: *exchange* (02), *family* (32), *privacy* (48), etc.

2. Technical words coined by colleagues to describe activities they have observed and have been able to abstract as a result of observation of different cultures, such as: *status and rôle* (01) and *sexual rôles* (13).

3. Words and phrases which are in common usage by anthropologists and other social scientists, such as: *community* (10), *age group rôles* (15) and *sex community* (*clans*, *sibs*) (30), etc.

The correct (i.e., least culturally determined) method of reading the tables is indicated by B above. Thus *Organizational extensions of interaction* is the correct reading for 01, *Status and Rôle*, *Economic results of bisexuality* for 32, the *family*. Similarly *Economic aspects of learning activities* is 62, *Reward for teaching and learning*, while *Pro-*

tective patterns of temporality is 58, Rest.

It may be noted that during the first stages of constructing the tables a uniform system of reading was used throughout, and we distinguished only between primary foci modifying secondary ones and vice versa. Thus 02 was 'Interaction considered economically', and 20 'Subsistence considered interactionally'. Similarly 35 was 'Bisexuality considered temporally' and 53 'Sexually considered temporality'. It is clear that even for these examples, and with only the individual and group aspects of the reciprocals as checks, difficulties were bound to arise in reading the chart in this way. It was also discovered that try as we might, it was impossible to avoid reading the tables differently when moving from one major area of the table to another. This had to do with the transition between levels in terms of the phylogenetic nature of the tables. Precisely what we mean by this will be elaborated in 5 below. Before going on to how systems tend to group themselves, it is appropriate to take up again the smallest unit on the table, the systemic focus, and further elaborate it.

3.2. The systemic foci (of which there are 90) include, in most cultures, more content than is indicated by the characterization of the relationship of a primary to a secondary focus, or by the mnemonic labels we have affixed to each. Whole courses are taught in sociology classes on 'The Family' (32). Linton[17] devoted a chapter to what he meant by status and rôle (01), another to the local group (14), while volumes have been written on the various aspects of the economic patterns of defense (82) of a complex culture like our own.

Perhaps the reader has already taken the next step, that of running each systemic focus through the ten foci of activity again. This is precisely what we found to be necessary before the self-checking aspects of the scheme could become completely apparent, and before it was felt that we had reached a point where this frame of reference could serve as a useful guide or check list for the field worker in establishing the basic units of a given activity in a given culture. If each of the 90 systemic foci has 10 possible elaborations on a tertiary level, the minimum number of focused groups of activities the social scientist has to work with will be as follows: 900 tertiary systems, 90 systemic foci, 10 basic focal systems and their systematic elaborations. That these add up to 1000 is purely fortuitous and is a function of the ten primary and secondary focal systems. The number 1000 does not exhaust, however, the extent to which it is possible to elaborate a culturological analysis.* As we will see below (4, The integration of culture) each of the elaborations of systems on different levels has in addition formal, informal, and technical aspects, which must be kept in mind and described. The number 3000 is not high when one considers the extreme complexity of some of the systems with which we are dealing (the communication systems, for example).

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*Our latest researches indicate that besides the elaborations about to be

It is quite obvious that in the present preliminary statement it is not feasible to list explicitly the 3000 categories indicated so far. It is possible, however, to indicate what is meant by the tertiary elaborations of a systemic focus by tracing one of the 90 systemic foci through the third step.

Economic extensions of interaction (02) provides us with an excellent example. As often happens when there is one word, such as *exchange*, which describes or encompasses an entire activity, it is comparatively easy to trace it through its tertiary elaborations. This is accomplished by reading the table as follows:

02.0. Exchange interactionally considered. These are the communicative aspects of exchange, such activities as advertising, the specialized vocabularies of exchange activities (when they exist) as in the case of auctions, and the South Seas kula ring[18]. Note: the *units* of exchange are always present in the vocabulary and may be represented also as material in 02.9 below.

02.1 Organizationally considered: traders, auctioneers, the stock exchange (as an institution), stores and banks in their organizational aspects; on the non-European level, such activities as the kula[18].

02.2. Economically considered. While exchange with Western Europeans often includes large doses of this elaboration, there are cultures where exchange is elaborated almost to the exclusion of economic gain (cf. Trobriands[18]). Exchange in its economic aspects includes all those activities wherein the primary objective is for the parties to contribute to their livelihood.

02.3. Sexually considered: reciprocal sexual privileges, prostitution, wedding presents, bride price, etc.

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mentioned there is actually a basis for breaking down each of the compartments of the table into nine components before any further elaborations take place; the nine components are arrived at by intersections of the formal, informal, and technical aspects of the original foci of activity.

02.4. Territorially considered: the where of exchange activities; in urban America this includes business and shopping centers. One can usually discover that there are places where exchange does or does not take place, places which can be explicitly and precisely described (cf. Christ driving the money changers out of the temple).

02.5. Temporally considered: the when of exchange activities; store hours, shopping days, such as Saturdays for the farmer; or at certain seasons of the year for some groups. This also implies when exchange does not take place. Note that the where and when of necessity includes all the exchange activities in all of their ramifications in which a given culture participates.

02.6. Instructionally considered: the teaching and learning of exchange activities (such as graduate schools of business and finance).

02.7. Recreationally considered: gambling, etc.

02.8. Protectively considered: the laws protecting commerce and exchange activities, magic for luck, some cases of divination, and gambling as a ritual.

02.9. Exploitationally considered: the material items (or items considered or treated as materials—cf. Fromm's marketing orientation for a psychological interpretation[19]—which are exchange or in which exchange takes place. Banks, stores, money, shell, women (when they are bought or traded or sold), slaves, magic spells and rituals. It is at this point that it is usually possible to arrive at the basic unit of exchange, a unit in terms of which all other units can be equated.

The above elaboration of exchange activities on the tertiary level is by no means exhaustive. It should be noted, however, that not all other foci will yield comparable degrees of elaboration. Also it is in the tertiary elaborations that the differences between cultures really begin to stand out in their most striking manner. In some cultures some tertiary elaborations will not exist. From this analysis it should begin to be clear that the conventional rubrics, such as economics, religion, war (see 6), encompass so many different systems and types of activities that a systematic analysis becomes impossible in the absence of the type of breakdown which we are presenting. Validation for this assumption can be found in the number of different ways in which these activities have been described in the past, and the number of theories to explain what goes on under each of these headings.

By way of analogy, the analysis of a speech or any linguistic text can only be accomplished by keeping the various levels separate. The linguist as microlinguist will record the sounds and the phonemes (patterns) into which they fall, will determine the morphemes, and state the constructions in which they occur (structure). Then as metalinguist he can discuss the style, including the choice of items of vocabulary and their appropriateness to the total situation. Further analysis can also be made of the accompanying voice-qualifier systems (if a tape or similar recording has been made) and of the accompanying kinesics if a motion picture has been taken. At this point the analysis goes into the realms of other systems of culture, and the relevance of the text to a political campaign or a story-telling cycle or the like can be analyzed. The point is that to say that 'It was a good speech' or 'An interesting story' is not a scientific analysis and doesn't tell us much except that people liked it. Similarly, a chapter in an ethnography labelled *Economics* does not give us an analysis until the complex activities are broken down into their appropriate systems.

In the past the social scientist has devoted considerable discussion to the subject of whether the scientist can or cannot be involved in what he is studying, i.e., the whole matter of subjectivity vs. objectivity. This dilemma can be resolved through the realization that there are two kinds of 'meaning' involved in cultural analysis on different levels. Referring to the linguistic example given above, we note that the linguist is concerned *only* with *differential meaning* while conducting the microlinguistic analysis, that he asks only whether these two events are the same or different. However, when he moves to the metalinguistic level, that is, when he begins relating the linguistic system to other cultural systems, he becomes concerned with the second type of meaning, which we shall call *valued meaning*. This distinction must be observed if the social scientist is to succeed in identifying the basic units of cultural systems. For example, in arriving at units in the time reference system of Americans as it is used formally (see 4 below) we have noted that tenths and hundredths of seconds or even blocks of seconds are not differentiated. However, if the American moves to technical time, units as small as a microsecond may be significant. The minute, however, is a significant unit of formal time for Americans. As a contrast, we can note that to the city Arab a quarter of an hour seems to be comparable to our five minute period.

4. THE INTEGRATION OF CULTURE

In section 2, under the heading 'The Content of Culture', it was mentioned that a detailed study of references to events in time demonstrated that Americans handled and took account of three different systems of time: formal, informal, and technical; and that these were in reality quite distinct and different from each other. Later in the same section the reader will note that the 'systematic elaborations' of each of the ten basic focal systems shows predominately a threefold division which, as will appear, conforms to the threefold characterization as formal, informal, and technical. There are also several references to the formal, informal, and technical systems of culture in section 3 (The Structuring of Culture).

While it has been our desire to present our data and how we arrived at certain conclusions in an orderly and systematic manner, we discovered that it was impossible to avoid references of this sort, as the theory we are now discussing is intricately interwoven through, and basic to, a deeper understanding of our total scheme.

The characterization of culture systems—principal or subsidiary—as formal, informal, or technical is based upon observation of the following facts. All cultural behavior embodies some activities which are imparted to the behaving participant by means of tradition; these activities are learned as basic to everything else, and are acquired by interaction between younger and older members of the society. In the learning of these activities there are involved precept, example, admonition, and correction; such activities we call formal; they have to do with the establishing, learning, protection, and perpetuation of the unquestioned way to behave. It is in this way that rights, duties, obligations, and limitations are established and felt to be the only 'natural' and possible way of life. Then there are behavior activities that result from sets of circumstances that, as it were, exist all about one and concerning which nothing much can be done; the behaving participant learns these by a one-sided process—he observes what happens, and without explicit statement or instruction, without admonition or correction, he begins to follow the observed behavior; these are the informal aspects of culture. Finally, there are whole systems of activity which are characterized by the transmittal, in one direction, from teachers to learners (older sibling to younger, parent to child, professor to student, etc.); the techniques and methods here are explicitly stated and are subject to examination and change; such systems are the *technical* ones.

This threefold characterization is applicable not only to the large complexes of culture, but to each subsidiary elaboration down to the smallest tertiary system, and again at each level of organization of any system. There is evidence to suggest that the personality profile—both individual and modal—is also organized in such a tripartite way; Freud's *ego*, *id*, *superego*[20] appear to be an attempt to make the same kind of classification, but without an adequate culturological frame of reference.

With this threefold analytical theory, we believe we have acquired a basis for describing how cultures change, and for suggesting the process of cultural evolution. The formal systems and formal aspects are those that change most slowly: they are deeply imbedded in every culture, and are tied up with the strongest emotions. The informal systems and aspects may be difficult to change in so far as they remain unstated and are taken for granted; their emotional charge, moreover, is less, or even absent. The technical aspects and systems change most quickly, being most explicit. A formal system, to function, must be accompanied by an informal adaptation to it; this latter is often expanded by means of technicalization. For instance, in the United States classlessness and equalitarianism are part of the formal structure of society; it is nevertheless given and true that there exist individual differences which necessarily lead to informal differentiation in almost every aspect of behavior. These informal differentiations are often technicalized by means of restrictive covenants and the like. If technicalization goes far enough it may lead to the setting up of subsidiary new formal systems, and even to the shift of the original formal system to the informal level. This suggests that the evolution of culture has proceeded in this order: the original circumstances of human existence—informal—became, with acquisition of greater skill and knowledge, technicalized, and gave rise to proto-cultures; these came to be accompanied by informal adaptations and further technical elaborations; then arose new and special formal systems, and the process continues over and over.

Before going on to discuss some cultural systems in detail in the light of this threefold characterization, it may be well to examine rapidly the anthropological work that has been done in the past in order to see what kind of materials it has treated. It is not unfair to say that the bulk of ethnographic description, as well as of sociological studies, has dealt with the technical systems and technical aspects of culture: organization of class structures, governmental machinery, marriage rules, kinship terms, calendars, weapons, technology, crime, delinquency, these are among the principal topics covered. Again, in the field of political science, practically the whole of the Marxian approach to society is concerned with the technical, and fails to handle the other aspects adequately. The formal systems and aspects have been treated largely as the great complex configurations summed up by such terms as religion, law, war, and the like, but again chiefly in their traditional elaborations; we shall discuss such configurations below in 5 and its subsections. Ruth Benedict's works[21,22] show an appreciation of the necessity of treating the formal, but have been criticized for inadequacy of technical detail. The informal systems and aspects of culture have received practically no attention; the rôle of the informal in the functioning of United States government agencies, for instance, has been mentioned, but has seldom been described in precise terms, while the Soviet attempts to get technical about every informal, non-Soviet attitude are well-known examples of lack of recognition of the importance of the informal in human relationships. The use of the personal document by anthropologists, with the more recent interview techniques, show attempts to come to grips with the necessity of treating the formal and informal; the data thus made available are highly useful, but are difficult because of the lack of the frame of reference we suggest.

We intend now to present a more precise discussion and description of the formal in culture, with a number of examples drawing upon various parts of the scheme discussed in 2 and 3 above. This will be followed by analogous discussions of the informal and then of the technical. At that point we shall be able to consider historical examples, showing the progression from one aspect to another.

4.1. The formal in culture was presented above (4) in terms of how it is acquired. Let us now characterize it more precisely. As stated, the formal systems and aspects are those based on tradition. They function to maintain and perpetuate the group, and are the most persistent. The formal activities are taken for granted, representing the unstated assumptions basic to the cultural system in question. As such, formal systems are usually recognizable by the high emotional reaction against any deviation. The formal systems define the areas of behavior to which informal and technical elaborations will be applied. The formal is functioning when it is said about something that it 'isn't done', or that it doesn't 'sound right', or 'look right'[13]. On both the individual and the group levels, the formal provides the basis for the continuity of the culture, the tie of the past with the future; these are the things people fight and die for, without 'really' knowing why. For human beings the formal performs functions comparable to innate behavior in lower organisms.

It was suggested above (3.3) that the division of the areas of the tabular scheme into core, orientational, and expressional systems was tied up with the formal, informal, and technical characterization of the systems. Having now a more precise statement of what the formal is, let us look once more at the core systems. Communication (00) is the most formal of all cultural systems—the traditional base of culture itself, and, as it were, the heart of the core systems. Society (11) is the formal aspect of any group, work (22) is the formal basis for the subsistence of a society, and the sexes (33) are the formal situation permitting continuation. The interactional systemic foci labelled community (10), ecological community (20), sex community (30), are analogously formal bases—with decreasing formalness—for the elaboration of interactional systems. Status and rôle (01), exchange (02), 'how the sexes interact' (03) are the formal developments of interaction, again in order of decreasing formalness. Occupational groups (21) and marriage (31) are formal organizational elaborations of subsistence and bisexuality respectively, and their reciprocals—economic rôles (12) and sexual rôles (13), are formal elaborations, economically and sexually, of association. The family (32) and the sexual division of labor (23) are again reciprocal formal elaborations of subsistence activity in terms of bisexuality. Taken as a whole, the core systems are that portion of any culture which is most traditional, most persistent, most resistant to change, most charged with emotion. Each of them, of course, can itself be considered in formal, informal, and technical aspects, as will be seen.

Turning now to the basic focal systems as such, we note that in each of them there is a systematic elaboration that is formal. In the first four, which are, by being in the core, formal as totalities, the specially formal aspects are, respectively, the vocal qualifier system (in 00), class systems (in 11), formal work (in 22), masculinity and femininity as culturally defined (in 33). Each of these is traditional, is taken for granted, is inevitable and persistent, is intimately connected with the emotional life. Vocal qualifiers go back to pre-cultural systems, are accepted as 'natural', and are transmitted by, and absorbed from traditional activities by all surrounding members of the society, as basic to establishing communication. Class systems are traditional and taken for granted. It is necessary and inevitable that any society have a formal work core. Being properly masculine or feminine is obviously right and is accepted without question. Outside of the core systems, we find under space (44) the formal elaborations of systems of usage of space; here are the traditional notions of what is crowded and what is not, of where to put people

and things, of where to plant, of how to lay out a town. Under time (55), we have systems that deal with the accepted significant units of time, the notions of promptness and diligence, the feelings about what time is and how it is used. Going on to the expressional systems, we find that formal enculturation (66) deals with the way a person is brought up (rearing), what one learns from family and kin and from other traditional and unquestioned sources. Under recreation (77) the formal elaborations treat of what is and is not fun, and what gives relaxation and what doesn't. For perpetuation systems (88) there are the elaborations dealing with traditional notions of defense, with what is defended and how and why, and with the identification of defenders and those defended. Under materials (99), the elaborations stemming from contact perception are the formal ones: shelter and housing, use of clothing and fire, what temperatures are adequate or bearable, how and when one washes, and the like.

In treating the core systems above, we described some of the systemic foci in that area. Each of these has its threefold aspects of formal, informal, and technical, as elaborated into tertiary systems. As an example, let us take marriage (31). The formal tertiary systems here are concerned with how marriage is arranged and how the partners in marriage communicate, who may marry whom, the economic contributions of the partners and the means of establishing them, and the part that sex plays in the marriage situation. An example outside of the core systems is that of territorially determined subsistence or 'subsistence areas' (24): the formal tertiary systems deal with how work space is laid out to permit communication, to delimit and identify group membership, to produce economically valued goods and services, to provide for sexual differences. The last example for the present is that of the use of materials for protection (89); here there is a minimum of elaboration of formal tertiary systems: they are the ones concerned with defense materials (clothing, weapons, medicines, etc.) as they foster or impede communication, enhance or minimize associational groups, provide for economic activities, and are differentially employed by the sexes.

It can be pointed out here that each tertiary system can itself be looked at formally. For instance, the system of laying out work space to provide communication has its formal aspects defined by what is thought to be appropriate to communication of this kind—amount and frequency of interaction at work, and similar traditional attitudes.

4.2. Informal behavior represents the individual's or group's unique adjustment to 'givens': those things which are, in the normal life span of an individual, unalterable, fixed, or all around one, and about which one can do little or nothing.

For the individual, the informal often performs the function of reconciling the differences between individual and group needs. Like the formal, it is often unstated. Unlike the formal, it is not acquired through conscious imitation and correction but is learned informally through close, often studied, and sometimes unconscious observation.

As has already been indicated (3.3), man's response to the orientational systems tends to be informal. The informal also appears in every other segment of the table. It is not characterized by awareness of the type associated with the formal (a thing is or is not done, is or is not proper), but instead in most cases by what amounts to an almost total absence of awareness.

Taking up the informal systematic elaborations of the basic focal systems, one finds under communication (00) the informal to be expressed in kinesics (body motions and gestures, one of the three communication systems). It should be noted that gestures in the normal speech situation go unnoticed; they are not taught, nor are people generally aware of their own gestures, or even the gestures of others, for that matter, unless these deviate too much or are absent (as a result of being derived from a culture or subculture other than that of the observer). Bodily movement is even less generally in awareness (once it has been established) than gestures, while calling attention to moods or to what movement communicates, can at times be highly embarassing.

Under society (11) one finds caste and kin as the principal informal systematic elaboration. Caste is, in terms of the participant, something he can do very little about. Adjustments tend to be informal and are worked out individually, usually as a result of observation. Diagnostic traits about which the subject can do nothing tend to become caste criteria (for example, skin color, or the religion or occupation of one's parents).

Work (22) is elaborated informally as maintenance activities, such as housework and care of buildings and equipment. Here again one finds that maintenance deals with givens: houses will get dirty and need plaster or paint willy-nilly. Some of the confusion which has been noted around activities of this sort in Western culture has to do with attempts to technicalize them. For instance, the status of housewife has been incorrectly equated both with that of professional worker and laborer.

In all cultures there are, as stated, established concepts of masculinity and femininity (33). These are formal and often are at variance with the biological fact of one's sex, which constitutes the informal. Failure to treat biological sex as a 'given' would seem to result in unnecessary complications in the person's adjustment. When biological sex functions as a given, it is largely out of awareness, i.e., lacks any self-conscious characteristics of the type that says 'now I am acting as a man' or 'as a woman'.

Space (44) and time (55) are largely 'given' and though also elaborated formally (4.1) and technically (4.3), their informal elaborations are exceedingly important. For space, this is delimited in terms of natural boundaries, rivers, lakes, oceans, deserts, mountains, forests and plains. For time, there are such things as the annual cycle, including the seasons and man's adaptation to them, the lunar and diurnal cycles, complex weather cycles influenced by such things as sun spots, the cycles of high numbers of locusts, cycles of epidemics, and the like. It should be noted here that these last have always until recently been treated as givens, and it is only lately that man has started to do anything about (to treat technically) cycles other than those associated with the rotation of the earth and its movement in its orbit around the sun, which have to be taken as givens.

Enculturation (66) is elaborated informally as a system of learning in which the subject does not interact directly with others in the learning situation, as he does in formal learning (4.1) and technical learning (4.3). Formally there are certain areas which are left for the individual to learn for himself, for which no technical provisions are made. Whenever a mother says 'You'll find out about that later, dear', or when a parent, older person, or super-ordinate says 'I don't care how you do it as long as you do it', they are saying in essence, though without awareness, 'Look around and see how others are doing it, and work out your own unique adjustment'. Informal learning is particularly highly developed in a culture like our own. Informal learning is often not even experienced as learning; that is, it often takes place out of awareness.

Recreation (77) is elaborated informally as playing. This is a series of activities which it is difficult to say much about because of their informal nature, our own limited observations, and because play is not highly elaborated in the Western world.

The informal elaborations of the protection systems (88) have to do with the preservative adaptations (which include attitudes) to such givens as potentially hostile forces in nature, society, and man himself. These include dealing with sickness and health, war and peace, lawlessness and lawfulness, life and death, grief and happiness, shame and guilt, and anxiety. The range of permissible attitudes varies considerably from culture to culture, i.e., is culturally patterned, yet shows a high degree of individuation even within the context of a given culture.

The informal elaborations of material systems (99) are all the systems dealing with the motor habits involved in the exploitation of the physical environment, the use of resources and the growth and gathering of food, systems of lumbering, mining, hunting, fishing, and agriculture.

As was noted in the discussion of the formal systems, there are informal elaborations of each of the systemic foci. The informal aspects of marriage (31) have to do largely with space (somebody has to be present to be married or to get a mate), and with time (there are seasons and often days when it is appropriate to marry). Courtship was indicated above in the expression 'to get a mate'; both space and time play a prominent rôle in courtship, i.e., there are places and times for courting. It is in these areas that the young can do little to alter things; in many cases they simply have to wait for it to get dark, or for the Christmas season, or for spring time to arrive.

Subsistence areas (24) has been elaborated formally above. Informally one finds in almost all instances territorial limits or determinates as to where work and subsistence activities can take place. An office, for instance, will hold only so many people. Cooking can normally only be accomplished where the appropriate apparatus is situated, lumbering can only be done where there are trees, fishing where there are fish, or agriculture where suitable soil is found (note: hydroponics has changed this somewhat), etc. The times when work space can be utilized are also largely given and in many cases are determined by the seasons.

It was noted above that 'use of materials for protection' (89) had very little of the formal in it. The informal, however, is represented even in activities as highly technical as these. There are places and times in which defense materials can and cannot be used or are or are not appropriate. In the military sense, the terrain determines to a large degree what equipment is used, just as does the season, weather, or climate. In isolated areas during the winter time it is more difficult to provide health facilities, or to fight an epidemic, than it is in places of easy access during good weather. The materials of religious activities and ceremonies are almost always determined territorially and temporally. On the highly personal level, where material extensions of ego-defenses are involved, these too are limited as to where and when they can be used. A fur coat, for instance, should not be worn outside of certain neighborhoods, and would be too uncomfortable in the summer.

The informal as it has been used and defined above represents an addition to those activities which the social scientist should observe and record. The presence of the informal in our own culture has been mentioned and hinted at previously. It has not, however, to our knowledge, been adequately described or properly placed in context along with other comparable activities. That it should have eluded us for so long is not difficult to grasp when one considers that it occurs very often out of awareness, and is a function of biological and other givens in the external environment. To become aware of the informal is a little like a fish becoming aware of water. The process of isolating it out was also complicated by out-of-awareness activities in other areas and the taken-for-granted nature of the formal in culture in general. The 'other areas' above refer to Freud's original attempts[20], stemming from his observations of slips and dreams, to describe what he called the unconscious. While H. S. Sullivan[4] did much to clarify Freud's original concept by bringing it out in the open and focusing the attention of the scientist on events which could be observed, the unconscious or dissociated events which the psychologist studies are quite different from the informal as used here. The fact that the psychologist was concerned with the interpretation of out-of-awareness events may have had a good deal to do with the social scientist's restrictions of his own observations to those technical aspects of culture which his informants could tell him about. On the other hand, even today considerable resistance is encountered whenever the writers start describing either the formal or the informal, as we have used it here, to psychologists. This is to be understood in the light of the psychologists' lack of sophistication in dealing with cultural data, and the tremendous rôle that both the formal and informal play in the lives of all of us.

To return to those activities with which the psychologists concern themselves, it was mentioned in 1 above that dissociated acts had a cultural dimension. They are not, however, informal, but would seem to result from reversals of, or deviations from, the natural hierarchy or order of the basic focal systems. This will be elaborated in 5 below, and is only mentioned here so that the different varieties of out-of-awareness and taken-for-granted activities may be kept in their proper relationships.

The informal then becomes that which deals with givens in the environment (social, physical, and physiological) and represents man' unique response to that which is viewed or looked upon as unalterable. On the individual level, it serves to adjust individual and group needs when these do not coincide; on the group level, it often serves to adjust the activities of the group to other groups when there is a difference of interests. In terms of the table, informal behavior tends to be more and more out of awareness as it moves from the technical (99) towards the formal (00); whereas as it approaches the technical, attitudes tend towards acceptance, resignation, fatalism, and sometimes apathy, depending upon the situation. In this connection, the phrases 'viewed' or 'looked upon as unalterable' are of critical importance. Modern medicine, for instance, has proved that cyclic epidemics do not represent givens in the environment once certain things are understood, or, stated differently, when the informal has been dealt with technically in this particular context. In this light the apathetic attitude of certain segments of our own voting population as described by Riesman[23] should suggest an area of research and a re-definition on the part of the scientist of that which has been viewed informally.

The fatalism of the Near East is also presenting grave problems to technical assistance teams. In this connection, preliminary investigation on the part of the writers indicates that Near Eastern fatalism is a function, in part, of a shift of the order of the basic focal systems of perpetuation (88), elaborated around religion, from ninth place (in the natural hierarchy) to second place, where they are intricately intertwined with communication, even to the extent that items of vocabulary and the script are sacred and also formal. Situations of this sort present the social scientist with particularly knotty problems. It is believed, however, that a better understanding of how culture functions can be of considerable aid in matters of this sort. The attitude of the Mohammedan in these situations is informal, with a variety of informality associated with the technical rather than the formal part of our scale. It would be in the technical aspects of the religion that one should look for opportunities to institute changes.

The informal, while new in our thinking, should make it possible to delimit activities in such a way that man's adjustment to his environment will be more appropriate. It also fills a long felt gap in regard to the analysis of change as a process (see 4.3).

4.3. The technical in culture is that part which is explicitly stated and statable, which is learned from a teacher, as it were, which applies specific lore or knowledge to problems, especially in terms of alternatives in the formal system, which delimits, refines, and makes precise the functioning of originally informal activities, and which collects and organizes the foundation materials for development of new formal systems.

In the tables the expressional systems are those that are inherently most technical and most apt for technical elaboration. Learning, play, and defense activities—arising from an original undifferentiated protective adaptation (2.2 above)—represent successive specialization of activity on a basis of explicit recognition of needs and response to them. Enculturation (66) as a whole represents the specific response of a society to the necessity for imparting its recognized ways of meeting needs to succeeding generations; it avails itself of all kinds of explicit statements—traditional lore, scientific knowledge, presentation of choices, definitions, explanations, commentaries. Recreation (77) again shows a specific set of responses to recognized and stated needs: the categorization of fun, the playing that children (and others) do, and the participation in games are all activities that involve a large measure of explicit recognition and verbalization; we say 'Children play', 'That's not fun', and so on—a type of statement not encountered for the core systems. Protection systems (88) arise from recognition and explicit statement of the nature of hostile forces and how they are to be dealt with. Material systems (99) are the technicalization of the technical—the most explicitly externalized of all cultural activities.

It is now appropriate to go through all the basic focal systems once more to point out their technical elaborations. For communication (00) the technical systematic elaboration is language. The voice-qualifier systems and the kinesic system are, as we have seen, based on traditional noises and informal gestures; language, however, represents the explicit systematization of certain kinds of sounds; it is something that can be said to have been invented, and it can be handled (heard, written down, passed on) very much like material objects. Once elaborated, of course, language becomes a formal system, since it is an elaboration of communication—the most formal of the basic focal systems.

For society (11) it would appear that control systems represent the technical elaboration. These are the systems elaborated by a society to apply to the members as a whole; they state relations and hierarchies explicitly, apportion power, and delimit controls; government is an aspect of controls.

Work (22) has as its technical elaboration the systems of crafts, occupations, and professions. It is formal to work or not as the case may be, it is informal to perform maintenance, but it is technical to engage in a specialized occupation.

For the sexes (33) the technical elaborations are in the systematic statements of technical norms. The celibacy of monastic orders, the sexlessness of professional, academic, and military titles, the special rôles and statuses of sex deviants in various cultures, are included here. When the needs of a society require it, segments of one or the other sex may thus be treated as a special sex or transferred to the opposite one.

Under space (44), the technical elaborations deal with boundaries. This term must be understood in a wide sense. There are the systems of actual material markers of all kinds; there are the kinds of boundaries marked on maps and charts and diagrams; and there are the non-material boundaries—those limits on action that exist by virtue of convention and agreement or simply as formal controls. All systems of weights and measures must be considered as special tertiary elaborations here (as well as under the systemic focus 'material extensions of territorial activities'—94).

Under time (55) the technical elaborations are the calendrical and time-telling systems. These become formalized, of course, and subject to tertiary and subsequent further elaborations. Numbering and counting must be included with the technical elaborations here, involving the cyclic aspects of sequence.

For enculturation (66), the technical systemic elaborations are the various kinds of systems of education. This implies a set-up involving specifically designated teachers and learners, places or buildings (schools), designated subject matter (courses), and the like.

Recreation (77) is technically elaborated as games and sports. Once it has been formally established what fun is, playing takes place informally, but games arise only when playing is technicalized and pinned down by rule, precept, and control.

The technical elaboration of protection systems (88) is found in the various kinds of specialized defense systems: health systems, military systems, taboos, magic, and most of what is described as religion in many cultures. Systems of prayer to and propitiation of the supernatural are included here.

For material systems (99) the rubric for the technical elaborations is technics. By this term we mean all that is normally meant by technology, and the techniques involved in it. Pottery making, basketry making, weaving, and the actual production of material goods are included under industry. Such concepts as industrialization are further integrations of the technical tertiary systems (see 5).

Marriage (31) has as its technical tertiary elaborations the systems that explicitly instruct the members of the culture in the behavior appropriate to courtship and marriage, that indicate the serious and the play aspects of marriage situations, that give legal protection or sanction to marriage rites, and that deal with the materials that go with marriage (the goods and chattels that the partners own or bring, etc.). For subsistence areas (24), the technical systems will deal with such specific matters as precise geographical or geological description of resources and where to find them, with the kinds of departures from subsistence use that are allowed for pleasure (grass and flowers bordering a field, for example), with legal and physical protections for subsistence areas, and with the use of materials to define, strengthen, and exploit such areas. Under the use of materials for protection (89), the technical elaborations deal with specific instruction for using all kinds of protective devices, with the manner in which the uses are deviated from for rest and recreation ('change of pace', leave passes for military personnel, post-exchange and USO activities, after-school use of a playing field), and with the specific and technical protective devices as such.

It was indicated above that the consideration of cultural systems in the three ways stated—formal, informal, technical—suggests the possible ways in which cultures and cultural systems change. It is here that our analytical scheme deals with history, and citation of examples of historical change may help to clarify the analysis.

For a first example we shall take a known bit of linguistic history. In Old English there was a phoneme /f/ which had the allophone [f] initially, when doubled internally, and finally, and the allophone [v] when single internally (*fīf* 'five' had initial and final [f], *seofen* 'seven' had internal [v]). This was part of the formal system of the Old English language. After the Norman Conquest in 1066, words from French began to be used, informally by individuals who 'picked them up', so to speak. In Old French, /f/ and /v/ were separate phonemes (*femme* but *vain*, *affaire* but *avoir*—and only /f/ in final position, *vif*). The English speaker who picked up such an Old French word as *veal* 'veal, calf' (modern *veau*) could either pronounce it with initial [f] = /f/, following his formal system, or could use initial [v] as an informal deviation from that system. When, however, French words became more widespread, the use of [v] in such instances became technically demanded and approved; we can imagine the kitchen-hand from the lord's castle telling his friends back home about how calf meat is called *veal*, and when some one of them tried to say it and uttered an initial [f], correcting him explicitly, 'No, not [f...], but [v...]'. Finally, the technical knowledge of how to use [v] initially became widespread, the word *veal* (and others like it) became a part of English, and a new formal system was thus instituted, in which /f/ and /v/ became separate phonemes, as they continue to be. When the old formal system was replaced by the new one, the previous formal usage became an informal one—some speakers still said [f] in *veal*, but this was no longer 'correct' or 'standard' or 'proper'.

Going now from this very precise example in a special and limited area, we can turn to an examination of the history of mankind in terms of subsistence, as it has been fairly well established by known documentation and archeological evidence, and we can see that the same pattern holds: the informal is acquired as a deviation from the formal, or as an innovation; then there is technicalization; then a new formal system arises, and the old formal system becomes informal. At first the food quest was a formal activity of the whole group (men, women, and children). Informally, individuals deviated or innovated by going off hunting, snaring, robbing nests, and killing young animals. Technical knowledge acquired this way developed the specially skilled in tracking and finding game, and produced the invention of special artifacts for these purposes. This was then elaborated into specialized hunting—a technical activity—which came to be the formal, primary subsistence activity. The old food gathering now became an informal, subsidiary activity. As innovations in this field, there came about the informal care of young animals, and the occasional care for a plant or shrub. These latter activities resulted again in technical skills, and from these grew the formal systems of agriculture and herding. With this development, the old formal hunting and fishing came to be informal, part-time activities. These activities in their new form, and the continuing maintenance activities, gave rise, among other innovations, to the development, still informally, of special artifacts such as metal weapons, containers for the products of agriculture and the hunt, and so on. As these got technicalized, there arose pottery, weaving, metal-working, and other special occupations. It seems probable that technicalized religious activities—a special priesthood, for example—arose at the same time. These technical skills become actual technical systems of occupations, crafts, and professions. In comparatively recent times, technical skills of this kind, as well as technicalizations of older activities like agriculture and animal husbandry, become new formal systems reflected in the industrial revolution. Other forms of work now become informal—housekeeping, unskilled labor, gardening. As technical knowledge grows, even these activities tend to become technical systems, so that, for instance, housekeeping is becoming more and more an occupation or profession; as houses are better designed for their functions, and no longer need to get too warm or too cold, or dirty, housekeeping will become entirely a technical system. At this point we may perhaps introduce a note of prediction. It may well be that mankind faces a new 'revolution'—not an industrial one, but one involving the formalization of science and scientific knowledge as the basis for subsistence activities (as well as many others). In this connection, we may note that social science is, by and large, still an informal system, since cultural differences are still being treated as givens, about which little can be done ('cultural relativism').

5. SYNTHESES OF CULTURAL SYSTEMS

It has already been indicated that different parts of our scheme reflect or point up activities of various kinds. Individually oriented foci appear above and to the right of the diagonal formed by the basic focal systems, group oriented foci below and to the left of this line. It was mentioned that the characterization of the nature of the relationship of primary to secondary foci varied, depending on what part of the table was being read. It was also noted that the order of primary and secondary foci was consistent with the order in which these foci emerge phylogenetically and ontogenetically, and that it was critical that the order be maintained. The above considerations are basic to what is to follow; there are, however, some additional items to be mentioned; these constitute general knowledge among anthropologists.

We are referring to what Kluckhohn[3] has termed covert culture, and which we have called above (Introduction) the implicit or unstated aspects of culture. Obviously people are not going to be able to tell the scientist very much about that which is automatic and taken for granted. In fact, this type of behavior only shows up when cultures are going through marked changes, or in the cross-cultural situation, with that which other people take for granted as a contrasting backdrop.

The anthropologist noted this type of activity and also learned that it was in these areas (sometimes referred to as values, a term which is variously defined and used) that changes were accomplished with difficulty and that integration of new patterns was slow. In 1951 Hall[24], reporting on changing institutions, advanced the proposition that there are core institutions supported by an elaborate matrix of supporting institutions, and that change did not take place in the core until the supporting props (figuratively speaking) were removed or shifted to support a new core; at this point the core toppled, dissolved, or ceased to function as a core. This observation, while it involved a type of topological thinking (the core is often that which is most obvious to outsiders), explained in part why it was that there are times when changes in culture are accomplished with tremendous rapidity and in very important areas of life.[25]

The concepts of core, implicit, covert, and activities variously stated as important or centrally located in a given culture, were already well established in anthropological thinking. The anthropologist had also noted that items dealing with technology and materials were often accepted, transmitted, or diffused with great rapidity. Between these two extremes there lay a spectrum (without any well-defined patterns), of activities which changed with relative degrees of rapidity, depending on the cultural context in which they were found.

As was indicated in section 4, we hold that there exist not two foci in regard to change, but three: the formal, the informal, and the technical. The covert, implicit, or core foci are formal ones. The most easily diffused and changed items are technical. An intermediate area involves the informal, where the rate of change is a function of the definition of the situation. The overt, the technical, is relatively easy to state, and in fact, the members of a culture can themselves make the statements. The formal, being largely unstated, has proved in the past to be also difficult for the anthropologist to describe. The informal, having to do with areas that involve reactions to circumstances that cannot be changed or are conceived as unchangeable—that are givens as it were—is the most difficult to describe, or to separate from the formal.

Keeping in mind the relative degrees of stability, explicitness, and degree of elaboration of various aspects of cultures that have been studied, and with a clear picture of the meaning of the three labels formal, informal, and technical, we saw that various parts of the scheme as a whole could be grouped in terms of these characterizations. This again was not anticipated, and is another confirmation of the validity of the order of analysis proposed.

Our interpretation of these groupings is based on the years of combined experience of anthropologists in observing how cultures operate, our repeated working, reworking and increased familiarity with the new frame of reference, and a detailed analysis of the time-space and communication systems. This led to the precise formulation of the nature of the elaborations of activities. With this central concept, there is also clarification of the process of change and evolution of culture.

5.1. If the reader will refer to the tables he will note that the systems formed by association, subsistence, and bisexuality—1, 2, 3—are termed core systems. Interactional interaction or the basic focal system of communication is the core of the core; in every culture the communication situation exists in a central location, setting the stage, as it were, for all other activities (references [2, 4, 7, 8, 10, 12, 26, 27, 28, 29, 30]). Core systems are those which are the most basic to all cultures, those in which there is the greatest elaboration of the 'unstated and taken for granted', which are the most difficult to change and hence the most persisting. They are, as wholes, formal systems.

Territoriality and temporality—4, 5—are involved in the *orientational systems*. The reasoning behind this term is appropriately obvious and needs no further elaboration. Biological territoriality and cyclicity are not too difficult to define. An examination of how territoriality and cyclicity are expressed as functions of size, energy, numbers, and the passage of time (for example, the altered territoriality of the female lizard while she is protecting her eggs is different from her usual territoriality) shows that by and large one is dealing with 'givens'. However, man's territoriality has been expanded to include all sorts of boundaries, cultural as well as natural, which has increased the difficulty of description. But there is little man can do about the presence of a mountain, a coastline, a river, or a desert; nor can he alter the diurnal, lunar, seasonal, annual, and other sidereal cycles. Man lives, as it were, surrounded by territorial and cyclic 'givens' to which he has to adjust himself. His response to these systems has a tendency to be informal (see 4.2), which is reflected in our labelling of the central set of orientational systemic foci (cf. Territorially *determined* temporality—54, Temporally *determined* territoriality—45, etc.). The 'given' nature of territorial and temporal activities is present everywhere in the orientation systems, but where these involve both formal and informal foci (40-43, 50-53, 04-05, 14-15, 24-25, 34-35) the reading of the combinations is in terms of the overlying groupings discussed in 5.2.

With the *expressional systems* (involving 6, 7, 8, 9—learning, play, defense, materials) man begins to exercise greater freedom in manipulating his culture. There are many more of these systemic foci. As one moves outward from the adjacent orientational systems, changes tend to be accomplished with greater elaborations. They include several distinct areas: the purely technical (66-69, 76-79, 86-89, 96-99), the mixtures of informal and technical (46-49, 56-59; 64-65, 74-75, 84-85, 94-95), and the mixtures of formal and technical (06-09, 16-19, 26-29, 36-39; 60-63, 70-73, 80-83, 90-93).

Apart from language, the most distinctly human systems are the *material systems* (included in the expressional systems). There are 19 of them, and they are, in essence, material extensions of activities indicated in the rest of the table. The material systems tend to be dominated by the technical, and are usually subject to change without undue resistance and immediate dislocation of core systems. If, however, as sometimes happens, core systems *are* threatened by technical advances, resistance will be present. Technologically, the advantages of early spring plowing can be appreciated; but if a people holds that in the spring the earth is pregnant and must not be disturbed, no amount of technical argumentation can persuade them to plow at that time (this example comes from the Taos of New Mexico). When technological changes are accepted, however, they are eventually reflected in changes in more centrally located cultural systems.

Another approach to the grouping of cultures gives a diagram homologous with the one arrived at for core, orientational, and expressional systems, but starting from the lower right corner. We have then the 'fringe' systems (involving only 6, 7, 8, 9). L-shaped around them are the 'situational' systems, the corner of which is identical with the corner of the orientational systems (44-45, 54-55), the two 'wings' of which are parts of the expressional systems above. At the top and left of the table come the 'emotional' systems—comprising the core systems, and the formal parts of the orientational and expressional systems. This three-fold grouping (fringe, etc.) has been investigated by us to only a slight extent, and is much less solidly based than the other one.

We recapitulate these two intercrossing sets of groupings thus:
core: formal only;
orientational: informal plus formal-informal plus informal-formal;
expressional: technical plus formal-technical plus informal-technical
plus technical-formal plus technical-informal;
'fringe': technical only;
'situational': informal plus informal-technical plus technical-informal;
'emotional': formal plus formal-informal plus formal-technical plus
informal-formal plus technical-formal.

The core and fringe systems do not overlap at all, and are 'pure' or 'isolate' systems. The orientational and situational systems overlap at the corner. The expressional and emotional systems overlap at the outer ends. These last four groups are 'mixed' systems.

Formal systems are those involving the bases 0, 1, 2, 3; informal systems involve 4, 5; technical systems involve 6, 7, 8, 9.

In addition to these groupings, it is also possible to discern that the systemic foci 09, 18, 27, 36, 45, 54, 63, 72, 81, 90 are different from the other systemic foci, and are indeed, from some points of view, not foci, but actual systems. We may call them the reciprocal focal systems. The existence of this diagonal in the chart suggests the possibility of still further groupings. The formal-technical systems may have some special unity, with L-shaped aggregates around them (fI + iI + iT and fF + iF + tF + tI + tT). Similarly, the technical-formal may be a starting point, with the groupings iF + iI + tI and fF + fI + fT + iT + tT around them. These possibilities need further exploration.

We may conclude this subsection by pointing out some mnemonic characteristics of the tables for the groupings discussed; the arrange-

ments are depicted in Tables 3, 4, 5 at the end of the pamphlet. If the two-figure symbols for the systems and the systemic foci are symbolized by n_1n_2, then we have these numerical relationships:
individually oriented systems: n_1 is smaller than n_2;
group-oriented systems: n_1 is greater than n_2.
fF systems: both n_1 and n_2 can be only 0, 1, 2, or 3;
iI systems: both n_1 and n_2 can be only 4 or 5;
tT systems: both n_1 and n_2 can be only 6, 7, 8, or 9.
basic focal systems: n_1 is the same as n_2;
reciprocal focal systems: $n_1 + n_2 = 9$;
for both bfs and rfs, the reciprocally placed systems add up to 99: 00 and 99, 11 and 88, 09 and 90, 18 and 81, etc.
iF: n_1 is 0, 1, 2, or 3, n_2 is 4 or 5;
tF: n_1 is 0, 1, 2, or 3, n_2 is 6, 7, 8, or 9;
fI: n_1 is 4 or 5, n_2 is 0, 1, 2, or 3;
tI: n_1 is 4 or 5, n_2 is 6, 7, 8, or 9;
fT: n_1 is 6, 7, 8, or 9, n_2 is 0, 1, 2, or 3;
iT: n_1 is 6, 7, 8, or 9, n_2 is 4 or 5.

5.2. Patternment and pattern can be demonstrated throughout the universe whenever we are provided with the necessary tools and techniques for discovering them. Therefore, one of the things we looked for on the level of pre-culture was a focus of activity in which pattern set the stage, as it were. It soon became obvious, however, that pattern, in and of itself, does not become significant until it is combined with something, or until there is something to pattern or be patterned.

While pattern became apparent in many ways as our work developed, it would seem that there are certain areas of culture where pattern predominates as contrasted with other areas where such things as situation and extension predominate.

It was necessary to postpone attempts to discover how pattern fitted into the picture until further steps had been taken in the analysis, steps which eventually lead to greater clarification of the way in which the primary and secondary foci were to be interpreted as they intersected at various points in the chart.

In any analysis of this sort there are always points at which intuition or hunch dictate which of a number of leads should be selected for further investigation. In the present instance there were the facts that not only were time and space at the center of the chart in a functional relationship to each other, but the basic focal systems of communication and materials (at the edge of the chart) seemed to be in a special relationship that bound them together, in spite of the extreme differences between these two systems.

One does not have to be a linguist, for instance, to be aware of the relationship between the thing and the thing symbolized, and the fact that these two are quite often confused. The anthropologist, of course, is familiar with many instances wherein words and ideas are treated as materials—bought, sold, exchanged, guarded, and copyrighted.

Further analysis and a review of data of this sort indicated that these two systems were in a functional relationship to each other and represented two different types of extensions, or ways in which man has extended himself.

All materials and their systems are in essence extensions, of one type or another, of man's body, a body which is also used to communicate and forms the basis of the communication systems, especially kinesics. The anthropologist does not need to have a picture drawn for him to get this point, and while culture as a whole can be said to be an extension of man, the material and communication systems are the most characteristically 'extensional' of all the systems of culture.

The communication systems are characterized by another type of extension, symbolic extension. As the body, which is material, is used to communicate, the verbal symbols used by man eventually become 'reduced' to writing, which involves materials again. In fact, it is where the two systems meet, at 09 and 90, that the two types of extensions become intricately interwoven. 09—'exploitational extensions of interaction'—includes the use of books, telephones, signals, writing, etc., and is also in a reciprocal and a functional relationship to 90, which is read as 'interactional extensions of exploitation', and includes all sorts of communication networks.

In fact, if one reads around the chart, taking in only those systemic foci which include interaction and/or exploitation, he will notice that these foci form a ring which is characterized by different types of extensions.

Society (11) and the protection systems (88), while quite different at first glance, also appear to be in a definite functional relationship in regard to each other. It is true that both systems can be analyzed in and of themselves as separate and distinct activities, but there is also a relationship between them of the type one finds in the case of the material and communication systems. For instance, the very existence of a group necessitates systems of defense, and the structure of protective systems everywhere reflects the social organization of the group.

It was this type of thing that Warder C. Allee[31] was getting at, on the level of pre-culture, when he demonstrated that being in groups actually enhances survival. Montagu[32], in his attempt to demonstrate a biological base for cooperation, also made this point, drawing from the works of Allee and others. Fromm[33] shows how controls (which are a technical aspect of the societal systems) become formal, which he states as a process of internalization. The work of both Fromm[17] and Riesman[23] and the ways in which they developed the relationship between shaming, guilt, and anxiety, and the effects that this has on 'Society', are very enlightening if one examines the kinds of activities which engender this triad. Again, one does not need more than a passing knowledge of either psychology or anthropology to see the relationship between acts which engender shame, guilt, or anxiety, and threats, real or imagined, from the outer world.

In a recent article, Meyer Fortes[34], discussing among other things the emphasis the British anthropologists have placed on the study of 'social organizations or social structure', treats society, quite appropriately, as a basic focal system. 'In this sense *social structure* is not an aspect of culture but the *entire* culture of a given people handled in a special frame of theory' (italics ours). He later notes the relationship between the societal systems and those concerned with defense or protection, in this case, religion: 'Anybody who has tried to understand African religious beliefs and practices in the field knows, for example, that one cannot get far without a very thorough knowledge of the kinship and political organizations'; and later in the same article, he says: 'What appears to happen is that every significant structural differentiation has its specific ritual symbolism, so that one can, as it were, read off from the scheme of ritual differentiation the *pattern* of structural differentiation' (italics ours).

The Pueblo of New Mexico provide another example of the close inter-relationship between societal and protection systems.

While the exact nature of the functional relationship between social and protection systems has not been worked out, and is not clearly understood, even on the level of pre-culture, it is quite clear that defense is enhanced by association and *vice versa* at almost any level of analysis.

As was the case with communication and materials, the societal and protection systems form a ring; in this pattern predominates, just as extension predominates in the outside ring. The fact that there are two different types of extension (material and symbolic) suggests two types of patterns: for 11 (society) one deals with the patterns of relationships between and among people, in 88 (protection systems) one finds the patterns of relationship between man (however he is conceived, singly or in groups) and that part of his environment which is conceived of as threatening. In the western world these relationships are thought of or experienced as man's conquering or dominating nature, whereas in southeast Asia, the general over-all pattern would seem to be one of man *in* nature, as it were.

We realize that this formulation in regard to the two different types of pattern is far from precise. We suggest it here, however, in order that there may be a focusing of attention on the clarification of not only what pattern entails and is, but what different types of pattern may exist in the world of men. A first check on the basic soundness of our assumption may be had by noting the points at which the two different types of patterns overlap, at 18 (protectors—doctors, clergy, soldiers, policemen, scientists, etc.) and 81 (defense groups: armies, police, public health, religious institutions, associations of scientists, etc.). It should be noted that whenever any of the above in either their individual or group aspects, emphasizes one of their functions at the expense of the other, there are pressures to bring them into line. It is quite appropriate, therefore, that religious institutions should be concerned not only with the supernatural, but with relations between men as well, that armies should have chaplains, and that our scientists, having created the atom bomb, should then hold a symposium on 'Physical Science and Human Values'[29].

The extension ring and the pattern ring together provide the basis for structure. That is, the structure of an event, whether it is a sentence, a building, or a group, is a function of both extension and pattern and all that these imply.

Having worked through the functional relationships of the communication and material systems as well as those involving social and protection systems, it still came as somewhat of a surprise to find work (22) and play (77) staring us in the face at the opposite ends of still another ring, even though we are fully aware that the work-play dichotomy has been a favorite topic of discussion for the past 2000 years or more; our analysis is made with full appreciation of the pitfalls resulting from this and comparable facts. We mentioned earlier that one does not need specialized training to see certain things, and of all of the functional relationships the one most widely recognized is that between getting a living and recreation. These two are indeed in an intimate functional relationship, and if one reduces the terms we have used in various parts of the table to symbols one discovers that there are work-play (27), play-work (72), work-work (22), and play-play (77). Work-work is 'drudgery', play-play is 'real fun', work-play includes hobbies (that which a rich man does for fun, but which a poor man earns a living at), while play-work is enjoying one's work or getting paid for that which other people do for recreation. The work-play ring (22, 23, 24, 25, 26, 27, 37, 47, 57, 67, 77, 76, 75, 74, 73, 72, 62, 52, 42, 32), in which work and play are functions of each other, is one in which activity predominates, just as pattern and extension predominate in the two outer rings. While the relationship cannot be demonstrated in a rigid continuum from the level of pre-culture to culture, it would seem that pre-cultural activity can be of two types: tensioning and detensioning as described by Kluckhohn and Murray[35]. Whether this assumption is valid or not will be demonstrated by future work on the definition of exactly what it is that 'activity' entails. At the present writing, it seems that the relationship between work and play on the level of micro-culture, and tensioning and detensioning on the level of pre-culture, is less obvious than is the case for the two different types of extensions noted earlier.

All of the functional relationships between the various basic focal systems have been mentioned with the exception of that of the sexes and enculturation. This is not at first an easy relationship to see in this way. In fact, one could hold that the fact that there are two sexes, and that they are treated quite differently from one another, is one thing, while the fact that people learn and grow up in a culture is something else again. All of this seems to be true until one takes a second look. Before doing this, however, it is appropriate to recapitulate a bit first. A glance over the primary and secondary foci (at the extreme left and at the top of the chart) shows that one is dealing with events which are of several quite different orders. This may explain why anthropologists can come up with such strikingly different results at times. The British, for instance, have focused their attention on social organization with the result that they and the American anthropologists often seem to be studying quite different things, and indeed at times they are. The disciplines of Economics and Education as they are currently conceived and handled, are, indeed, worlds apart, and until recently the work of the linguist seemed to be so specialized and unique as to exclude all of the above. One could also mention the specialized disciplines of political science, government, and law, as well as psychology (working partly at the level of pre-culture, in the area of learning, plus some overlap with the doctor, the minister, or priest). Our point is one which is an old one and yet a new one too. Culture includes a wide variety of events in many different relationships to each other—events which are characterized, as suggested by Whorf[36], by rapid shifts from one event to another. The shifts from extension to pattern and from pattern to activity are extreme in the essence, and one has to be prepared for this type of thing in the analysis of culture.

The shift from activity to what we will now call conditioning is another case in point. An examination of the ring in which the sexes and enculturation appear shows that these two are also in a functional relationship to each other. Again one does not have to be a social scientist to observe that little boys and little girls learn and are taught quite different things and that the enculturation process is different for the two sexes; that is, what one learns is largely a function of one's sex, and conversely how one is taught is also a function of sex, as every teacher knows. (Girls have to be handled differently from boys.) Over-riding this, and as a later consideration, what one learns and how one is taught, is also a function of one's socio-economic status, where and when one lives and the language one speaks, as well as the physical equipment coincident to learning. One's sex, however, is basic to these.

As indicated above, the events which occur in the ring formed by the sexes (33) and enculturation (66) are predominately concerned with conditioning, which is a function of one's sex on one hand, and how one integrates experience on the other. Conditioning and activity together provide the basis for behavior.

Before going on to situation, which is basically a function of time and space, we would like to pick up a point indicated towards the end of the previous paragraph. The reader may have already guessed that if there are two sexes which give rise to two types of conditioning, that perhaps there are two of something else expressed in the basic focal system of enculturation. This would indeed seem to be the case. We did not arrive at the two types of integration in this way, however, but in another way (through a line of inquiry which is as yet incomplete). Working on the level of pre-culture, we were attempting to see if our schemata would indicate the different types of basic events or components which culture expresses, or stated differently, what different kinds of things does every language have to express or deal with. Inventories of the content of languages and culture have not to this date led to any systematic expression of the type of thing we were looking for. Our chart and the accompanying analysis did indicate that perhaps there was a way in which one could discover the systems, or schemes, governing the integration of culture on at least one level. A good deal of this is already indicated in what has been said. That is, one finds various types of extensions of the biological organism, pattern, activities, etc. We were, however, looking for a different order of event which was suggested by our analysis of functional relationships between the basic focal systems.

Starting at the center of the chart one finds time and space in a situation nexus, and that time (one thing) with space (again one thing) constitute a function of situation and vice versa. As one moves out, one discovers in the next block, two things (two sexes), which leads to the hypothesis that, given the type of data we have been working with in this particular frame of reference, if there are two sexes, then there should be two ways of integrating experience which are in a complementary relationship to each other, each with its own necessary function. This does indeed seem to be the case. While the final proof of this hypothesis will rest with the neuro-anatomist, we believe that there are enough indications to support our analysis, to lead us to make it public at this time.

Like a great deal that we have mentioned that is common knowledge on the part of both scientist and layman, the two ways of integrating experience have been taken account of and described by men far back in literature. What we are talking about is very real, it would seem, but is not indicated by any external distinguishing traits. The 'intelligence' and various other tests of the modern psychologist are recent attempts to get at this distinction.

It is well at this point to repeat what our analysis indicated: A: there are two ways in which experience is integrated or learned, or two ways in which the organism is modified; also as in the case of sex, these do not exist in their pure state, i.e., each has characteristics of the other in varying degrees and there are inter-grades. B: these two things exist in complementary relationship to each other and are both necessary; also, as in the case of the sexes, different cultures may enhance or value or emphasize one more than the other. C: within each there will be a hierarchy; just as some men are more masculine than others and some women more feminine, there is also a hierarchy within the two types of integration.

In order to avoid invidious differentiations, we have termed these two point and line integration. Both can be either high or low order in their own class, or they can fall between the extremes. They are characterized as follows:

The line integrator works within a given system or systems. His function is to make systems go, and his intellectual eyes are turned inward, as it were, towards improving and working within, or manipulating his own frame of reference. When he is a high order line integrator, he learns very rapidly and with great ease, as long as what is given him is integrated into some type of system. Memory work is not arduous to him. By and large he ignores contradictions between the internal logic of his own systems and events which are outside his systems. It must not be assumed that line integrators are not scientists; one can say that some of the best scientific work is done by persons of this type. This is because, given a system, they then go to work and build the solid foundation which gives the system substance.

As indicated earlier, this type has an easy time in school if he is 'bright', because he does not tend to question the system but accepts it as given him. He is, however, at times disturbed by and tends to distrust the point integrator who raises questions about points that are outside the line integrator's systems. Some figures of speech associated with this type are as follows: 'Now I get (or don't get) the picture'. 'Let me sketch you in'. 'I can't quite take this in'.

The point integrator has to make each point his very own, and consequently may learn more slowly than a line integrator. He is likely to question his teachers and professors about the 'principles' involved in a given scheme. He is deeply disturbed by contradictions, either within a given frame of reference or between that frame of reference and what is outside. There are times when he has difficulty with line integrators who do not get his points. His function in regard to society is to create new systems as conditions change; he is, however, restless in a static situation and tends to suffer if he isn't permitted to integrate his points. Having discovered the points, however, he is likely to lose interest and move on, leaving line integrators to fill in the picture, so that in the realm of science he is often accused of being 'unscientific' or lacking proof for his points. Professor Einstein would be an example of a point integrator of the highest order, Napier of a line integrator. No one can deny the contribution of either.

Point integrators tend to use figures of speech somewhat as follows: 'Let's get down to cases'; 'Now I get (or don't get) the point'; 'Somehow I can't seem to grasp what he is talking about'; 'I need something tangible to get hold of'; 'That brings it into focus'; 'Can't you pin-point it a little more?'

Point integrators seem to get very excited or center their emotions on ideas, whereas the line integrator has visceral reactions when his systems (which are seen as involving moral principles) are violated.

Our idea in bringing this up at this point has to do with the progression and order of basic units or components of culture. There is also the fact that these two types not only work quite well together as members of teams (provided their functions are seen properly), but they also sometimes clash. It would be of value to the educator to know it, if these two types are valid and real. If so, it certainly follows that they should be handled differently wherever one finds them. Although they occur in a functional relationship to the two sexes, it should be made clear that there is no indication at present that these characteristics are sex-linked.

As was indicated above in regard to activity as a function of work and play and possibly tensioning and detensioning, it would seem that the conditioning ring is not only a function of bisexuality and enculturation but possibly, on the level of pre-culture, of euphoria and dysphoria (however these may be defined in a given culture). That is, pleasure and pain, or euphoria and dysphoria, are the means of conditioning, man seeking one and avoiding the other. We have not, however, worked out the continuum from euphoria and dysphoria on the level of pre-culture to conditioning on the level of micro-culture. The relationship seems clear enough; the steps in the process of establishing the relationship have not, however, been demonstrated.

Having taken up the elements of structure and behavior, one is left with *situation*, a function of time and space. There is not much one can say about this at present, except that every event has its situational aspects, as well as its behavioral and structural ones. We have phrased this as follows: there is the structure *of*, behavior *in*, and situation *for*, any given event in culture. This means that an appropriate culturological description or analysis will include not only the formal, informal, and technical aspects, but the structural, behavioral, and situational ones, as well.

It is hoped that further work on the part of colleagues and ourselves will make it possible to further define and refine what is now known of these two trichotomies which seem so basic to culture.

It is also envisioned that it will be possible to discover the underlying units of all cultural systems in the way that it has been possible for the situational and conditioning rings. We have already done a great deal of investigation along the line mentioned above and propose to report in detail at a later date. In the meantime, we can indicate that the logic of our system points towards four basic components of work and four of recreation, eight components of society, and comparably eight protection components, and 16 components each for the communication and material systems. Our logic also demands that what is present in one ring, will be reflected in the others, so that the possible number of combinations becomes very large indeed, when one deals with communication and material at the outer edges. It should be noted this last is by way of hypothesis and remains to be demonstrated. We mention it simply as a preliminary report of investigation in progress and as a means of providing the reader with more of the 'feel' of what this frame of reference can lead to, namely a calculus for the analysis of culture.

6. THE CONFIGURATIONS OF CULTURE

In the elaboration of the analysis presented in this paper so far, it has been indicated at several points that some of the seemingly central subjects of cultural analysis do not appear as rubrics in the tables because they are at higher or more complex levels of organization. Such items as war, religion, law, 'motherly devotion', etc., are not found in any of the boxes in the tables resulting from the intersection of the basic foci of activity, nor do they seem to be describable as formal, informal, or technical aspects of some labelled category. We believe that what is involved here is the identification of functional interrelationships between various parts of the scheme. The configurations of interrelationships are real enough, of course, and cannot be overlooked. Differences between cultures are even more striking in these configurations than elsewhere. They come about from the selection of the items that constitute the sets of activities that are interrelated.

It appears to us that an analogy may be made with the field of linguistics, and that such an analogy will help us to clarify what has just been said and will show how to approach the analysis of what we are calling configurations and sets. The field of linguistics as a whole, macrolinguistics, is divided into prelinguistics, microlinguistics, and metalinguistics.[12] In prelinguistics we have the biological base, in microlinguistics the actual linguistic phenomena as such, and in metalinguistics the interrelations between the linguistic system and other cultural systems. The material we have been presenting lends itself neatly to analogous description.

The biological activities from which we started our discussion and analysis constitute the level of 'pre-culture' (as we may call it, by analogy with the linguistic terminology). The primary and secondary foci of activity as we have set them up, on a biological base, are already, however, on the level of 'micro-culture' (culture proper). This is analogous to the situation in macrolinguistics: the physics of sound and the physiology of the so-called organs of speech (which physiologically are no more 'organs of speech' than the hand is an 'organ of culture') are in prelinguistics; but the actual speech sounds and their formation, as studied in phonetics, are part of microlinguistics. The failure to make this fundamental distinction of levels has led many students of culture to try to become physiologists or neuro-anatomists or acoustic engineers or statisticians, in a desire to be sure about the pre-cultural base of culture. It is, of course, perfectly proper, and in fact, essential, that the culturologist should ask questions in the various pre-culture fields, but he can ask them only when he has delimited the field of micro-culture; and then, having asked his questions, he should, preferably, put them to the specialist and get the answers that way more quickly and more accurately than by trying to work in pre-culture himself. When the culturologist has gone into pre-culture himself, the result has often been to produce confusion rather than clarification. Organic pathology, of course, does make differences in the adjustment of individuals to their culture, but pathological deviations, as such, are not the concern of the culturologist, though he can concern himself with the culture's response to the presence of such pathology. The culturologist must necessarily deal with the normalized responses of the normal human being, an abstraction that he must start with in doing micro-culture. To seek to explain cultural phenomena by physiology is just as unscientific in personality as it is to 'explain' differences between societies by means of 'race'. In linguistics, the linguist may identify his informants, but he explicitly and implicitly indicates that he is using them as samples that adequately represent the speakers as a whole. Individual differences in voices do not make any difference in the structural analysis: in English, where there are four pitch phonemes[10], a woman may use much higher absolute pitches than a man, but the analysis of a sentence like I like it will show the intonation morpheme $\surd^{231}\#$ for any normal speaker saying it in the usual 'unemotional' way. For the hearer the absolute pitch range is completely blocked out because he is behaving as a participant in the culturally patterned communication situation. A foreigner, not having the pattern, may very well hear the differences and not know how to react to them. Other physiological differences must be 'overlooked' in the same way when the culturologist discusses cultural activities that involve them.

We have said that the primary and secondary foci of our tables are the subject matter of micro-culture. The intersections of the foci, two at a time, as in the tables, and all their elaborations taken as a whole, are a second, more complex ('higher') level of micro-culture. It appears to us to be quite possible to compare with microlinguistics again, and to indicate that the primary dichotomy made there between phonology and morphology is here paralleled. The primary and secondary foci cover the elemental building-blocks, as it were, of culture as a whole, as phonology does of language. The intersections of the foci are then like the groupings of phonemes into morphemes—the morphemics. Now under morphemics the linguist considers morphophonemics—the shapes of the morphemes, and arrangement—the putting together of the morphemes. Corresponding to the first of these we have the study of the separate tertiary systems and systematic elaborations of our scheme, in all their aspects. To the second correspond the groupings of systematic elaborations and tertiary systems; these are of two kinds: the basic focal systems, and the systemic foci. Our analogy seems still to hold even this far: the basic focal systems, constituting the fundamental structure of the culture, are like morphology in language—the structural arrangements of morphemes to form words; the systemic foci parallel the syntax—the arrangement of words into constructions. With syntax microlinguistics ends; parallelly, with the systemic foci micro-culture ends.

Metalinguistics has been described as the area dealing with the relation of the microlinguistic system to other cultural systems. So, for culture as a whole, 'meta-culture' may be described as the area of the relation of any of the cultural systems described under micro-culture to any of the others. These interrelations, then, would give us the sets and configurations alluded to above and developed in 5.1. Table 6 depicts the analogies we have just discussed.

6.1. We shall now discuss some of the items under meta-culture as just delimited, and indicate some aspects of the methodology for analyzing them that may be worked out.

The term *set* is a convenient one to use for a grouping of items whose individualness is recognized, but which are nonetheless regarded as constituting a necessary kind of aggregate. Cultural differences are often made clear when what is regarded as a set in one culture is looked upon as a unit elsewhere or as part of a different set. This is an important point: a set is an aggregate or complex but it is not a unit. The behavior towards that which is defined as a unit is of quite a different order from that towards a set, and when a society discovers that some supposed unit is really a set, or *vice versa*, behavior changes accordingly.

Historically, the human body was looked upon as a unit, 'the body', opposed to another unit, 'the soul' (or, in other contexts, 'the mind'). With increase of human knowledge, it became apparent that what we usually mean by the body is really a set of physiological and other systems. Of course, an individual human being, especially when dead, is a 'body', a unit, but the term *body* does not usually have such a specialized reference. This comes out in the fact that we often use the term *body* as an equivalent of *set*—'a body of knowledge', 'a body of troops'. In other languages, it is sometimes difficult to get a translation for *body*: the Taos of New Mexico tell the inquiring linguist that the word is *tíona*, but on further

TABLE 6

Culture as a whole.	Language.
Macro-culture.	Macrolinguistics.
Pre-culture. [Human biology.]	Prelinguistics. [Physics and physiology of speech.]
Micro-culture. [Culture as such, cultural systems.]	Microlinguistics. [Linguistics proper; linguistics systems.]
[Primary and secondary foci.]	Phonology. [Sounds, phonemes.]
[Intersections of the foci.]	Morphemics. [Morphemes.]
[Tertiary systems and their aspects.]	Morphophonemics. [Shapes of morphemes.]
[Groupings of systematic elaborations and tertiary systems.]	Arrangement. [Groupings and sequences of morphemes.]
[Basic focal systems. Fundamental structure of the culture.]	Morphology. [Fundamental structure—formation of words.]
[Systemic foci. Groupings of tertiary systems.]	Syntax. [Grouping of words and morphemes into constructions.]
Meta-culture. [Interrelations of cultural systems. Configurations and sets.]	Metalinguistics. [Relation of linguistic systems to other cultural systems.]

inquiry this turns out to mean 'meat', 'edible flesh'. When 'a student body' is treated as a unit, there takes place behavior quite different from that which occurs when the student 'body' is recognized as a set of individuals or groups.

The set, then, is a recognized and recognizable analytical unit of culture. Its identification is part of the anthropologist's job. It is, like vocabulary items, arbitrary, but its reference can be determined accurately by extensive observation of the facts of occurrence and distribution. In the Western world 'the cosmos' was a unit until the Copernican astronomy took over; 'nature' is still, for many people, a unit; 'disease', 'war', 'peace', 'the Indians', are other assumed units; all of these, and many more, are actually sets of phenomena, taken out of context, so to speak, and culturally assigned to a single rubric. Cross-culturally, as already stated, a set in one culture is a unit elsewhere, or the connections are not made at all: to us war is a set in most of its references, though sometimes treated as a unit; war to the pre-Columbian Aztecs was a very different set; and some peoples have no war. Common unit terms are energetic, neat, prudish, friendly, perceptive, apperception, intellection, emotion, need, learning, etc.

In our examination of the data represented in tables 1 and 2 we soon saw, as has been indicated before, that three-dimensional models would be very useful for showing some of the larger interrelations. Constructing some models of intersecting great circles not only made it possible to actually see some of the known interrelations, but also brought to our attention other possibilities that seemed significant for future investigations. This is not the place to pursue the subject of visual, spatial models for conceptual schemes like ours. But we can point out that the kinds of interrelations that are suggested here are the ones that we designate as configurations. Configurations differ from sets by being not arbitrary but founded on real functional interrelations.

Some configurations which are immediately apparent are such things as religion, science, literature, and law. In our culture, historically, and largely even at present, these are the clusterings of activity which 'everybody' recognizes. It will be useful to examine these four rubrics in the light of the analysis presented here.

Religion in the Western world has accreted such a series of special connotations that it has always been hard for anthropologists to define what they were looking for under this rubric in other cultures. Always terms like magic, tabu, ritual, superstition, and others, have somehow come into the picture. Taking one of the more usual starting points, and defining religion as the means whereby a group secures the cooperation or mitigates the hostility of the supernaturals, we see that this is first of all something that comes under protection systems. There are formal defense aspects of religion in the traditional patterns of attitudes toward the supernatural powers; there are informal defense systems in the relations with everpresent spirits and the like, and there are technical defense systems in ritual. Aspects of religion are found in all the basic focal systems. The clergyman's tone of voice is well known, the sanctimonious look has often been described, the special vocabularies of the sacred and profane are part of everyone's knowledge. In many cultures the practitioners of religion are a special class; with us, members of some religions are castes (colored Baptists, Jews); and in many governmental structures religion is specifically treated (excluded with us, included elsewhere). Much work and maintenance are accompanied by special ritual activities; while being a clergyman or the equivalent is certainly a specific profession. Bisexuality is tied up with all kinds of religious activities in so many ways that we need not expatiate on it. Space has religious aspects in holy ground, cemeteries, and the like. Time is involved in religion in the various cycles and the calendar. Enculturation shows religious aspects of rearing and education, as well as in informal learning. Recreation is deeply involved with religion: dances, songs (hymns), miracle plays, and the like are found in many cultures. In material systems, rituals accompany many of the activities, material objects are sanctified or used to sanctify, and buildings become special holy places. A large configuration like religion has many sub-configurations. One of these clusters around the feelings and attitudes that result from three aspects of communication: instructional, recreational, protective (06, 07, 08). The communicant is given a set of precepts—he is instructed how to behave. If he follows these faithfully, he will achieve well-being of a kind that will relax and rest him and give him joy, and he will also get a protective armor against evil forces of all kinds. By doing what he is supposed to do, the faithful one avoids anxiety and the displeasure of significant others, thus acquiring well-being[4]. It may be noted that anxiety here, as well as guilt and shame, are things that can be avoided or brought on by acts of the will, so to speak, and should not be confused with the results of endocrine disturbances or other physiological factors, which are pre-cultural. The 'ethical values' of many religions are found in such a configuration, or in the reciprocal one based on interactional learning, play and defense (60, 70, 80). Religion is such a pervasive kind of configuration, that we could trace elements of it in all the systemic foci, and, for the western cultures certainly, in most of the tertiary elaborations.

When we begin to examine the configuration labeled science, we see that it is very much like religion. It is widely elaborated, it is found reflected in many or most of the same systems, and it serves many of the same functions (has similar 'meanings'). This is historically very clear in the Western world: as technology developed rapidly (a process that has been going on for two millenia), so many new, and highly technical, activities arose that there was no time, so to speak, to incorporate them into the formal configuration of religion. There thus arose a kind of dichotomy, which, with the progressive technicalization of religion itself, brought about a widening gulf between science and religion. In the Western world today, science is the religion of many, scientists (real or pseudo) are 'high priests', and the products of science are holy and revered objects. 'Organized religion', thus, finds in science a threat and a danger. One aspect of science, the belief in freedom of inquiry and in the need for ever-widening knowledge, represents a meaning or value that is not found in traditional religions, and in this way gives Western culture the possibility of a new kind of all-embracing formal configuration. It may be noted here that in China, for example, much of what we would call religion is very informally organized, so that science there, whether indigenous or western, is not in conflict with religion. In still other cultures—say those of the Pueblos in the Southwest of the United States—religion and science are a single configuration, with conflict between them quite incomprehensible; Pueblo science is applied science (irrigation, harvesting, etc.), and goes hand in hand with religious practices.

Literature is another large configuration. It involves the interrelations of all the aspects of interaction and of all the interactional aspects of the other primary foci. Its orientation or specialization is largely instructional and recreational in any of these aspects.

A factor that has not hitherto been specifically mentioned comes out from the three configurations of religion, literature and science. This is the matter of invention or creation of new aspects or systems of culture. Invention in this sense is, we believe, largely a result of the recognition of needs as they have become apparent in the development of a configuration involving some facet of communication. The recognition takes place informally. There is then explicit looking about for a solution. This results from the conversion of a supposed unit into a set. It also seems that in cross-cultural diffusion the items of such a set may be separated out and incorporated into existing configurations or may participate in new configurations.

Among other configurations there may be mentioned such things as crime, law, ethics, social disorganization. The manner in which these can be examined and characterized is clear from the brief treatment of religion above.

The recognition of sets and configurations leads to the consideration of cultural profiles and of personality values in the next two sections.

6.2. In 2.1 reference was made to the accounts of travellers and others containing descriptions of culture. It was also stated that most such descriptions emphasized the technical aspects of culture. In recent years, however, anthropologists have been attempting in various ways to do this more scientifically. There has also been a stated effort to communicate the core values and the traditional aspects of cultures other than our own. These attempts mark steps in the right direction. It is our opinion, however, that the non-specialist, unhampered by technical tradition and motivated by artistic goals, still does a more successful job of communicating in this field. It was not until recently that the reasons for this became clear. The good writer necessarily records the kind of thing that is basic in the lives of men: bits of the kinesic systems, tones of voice, how space is used and organized, the units of time, and, if he is particularly perceptive, he keeps separate and distinguishes between the formal, informal and technical. He also manages to point up the relative weighting of the basic focal systems and reflects quite accurately those events which are taken for granted by his characters.

Besides writers with purely artistic aims, there have also been philosophers and historians who have attempted to describe whole cultures and to summarize their basic orientations. Psycho-analytic workers in possession of very detailed personal data, have also here and there interpreted their findings in the light of anthropology. Most recently, anthropologists have explicitly tried to get data on which to construct profiles of the modal personality of groups and the basic personality of individuals. The variety of the attempts testifies to the complexity of the problem. The present writers believe, as a result of the research being described in this paper, that it is really possible to construct cultural profiles, once one has the full picture set forth within the frame of reference we are using.

Our first attempts at such evaluations gave encouraging results. These first analyses were at two levels: the highly specific, using parts of two basic focal systems, and the more general, in which all the basic focal systems were weighted.

In the first instance, we wanted to discover the basis of culture conflict and misunderstanding in regard to promises in two areas—time and materials—between Americans and a Middle Eastern culture. An intonation pattern which commonly occurs in both Persian and English, and which indicates, among other things, a reaction of disappointment to commitments (implied and other), provided the first cue. Our analysis showed that Americans tend to expect a promise or commitment involving time to be kept, and will apologize and react viscerally for being much more than a few minutes late. The Persians take this sort of thing very lightly. We, on the other hand, take a 'reasonable' attitude when a material commitment on the part of another cannot be fulfilled because of events beyond his control. The Persians' response to a broken commitment of this sort very closely parallels our own in regard to time. Persians, therefore, do not like to commit themselves materially for fear that something may intervene, and Americans find it difficult to pin them down. Moreover, they react negatively to our 'irresponsible' behavior in regard to some of the promises we make.

Our second and more general experiment involved securing from Americans—mostly middle class, and Eastern-seaboard oriented—a weighting or ranking of the importance of the ten basic focal systems of our analytical scheme. We discovered that the natural hierarchical order has been departed from, for most such subjects, in the areas of bisexuality, materials, and recreation. Materials are placed very near the top, whereas bisexuality is ranked near the bottom, alternating for last place with recreation. An Arab informant, on the other hand, ranked bisexuality and its manifestations at very near its place in the natural hierarchy. He separated time and space and put time last. Material systems was also ranked low, while defense systems were placed very high in an intimate nexus with communication.

There are, however, cautions which should be noted: a properly executed cultural profile should treat not only the ten basic focal systems, but the systematic elaborations of each as well, so that the resulting table indicates not ten, but forty points of reference. In cultures which are similar, such as our own and those of Western Europe, the full scale should be used so that the resulting table shows not only the arrangement and degree of elaboration of the basic focal systems, but the systemic foci as well.

Since all of the ten basic focal systems are important, asking a subject to weight them is often attended by high emotional responses of the type associated with a Rorschach or forced-choice test. To administer such a test is in itself a technical skill that has to be acquired and should not be attempted without previous experience in, and knowledge of, just what is indicated by a frame of reference of the type we are describing.

The preliminary work is promising, but considerably more research of the type indicated, is needed before anything approaching a valid statement of results can be made. There is the means, however, of recording cross-cultural profiles of up to a possible thousand or more activities. Preliminary investigation indicates that, among other things, points of conflict between cultures will show up quite readily when full profiles are compared.

Three types of activity in which awareness is restricted were indicated in 4.2 above. These are: that resulting from, and attributable to, the 'taken-for-granted nature' of formal culture, the unspoken neutral, apathetic or fatalistic response to givens, real or imagined, that one encounters in informal culture, and the highly charged negation of the dissociated set. It is in this last area that psychiatry and cultural anthropology overlap[5], while the attempts (or their absence) to 'adjust' patients to their cultural environment seldom take into account either formal or informal culture (a response which the psychiatrist shares with other scientists[2, 11]). Further developments of the rather complex subject indicated above would carry our discussion beyond the scope of the present paper, as it deals with the whole matter of the cultural deviant, the psychotic, and the neurotic, and it is anticipated that future publications will be devoted to this field.

The remaining point germane to the current discussion takes up again, admittedly all too briefly, the matter of dissociation. Dissociation cannot be adequately explained in terms of much that has been known of cultural activity in the past, which may be one of the reasons why it was left to the psychiatrist to deal with. Preliminary investigations indicate, however, that behavior of this sort may eventually be understood in terms of shifts in the natural hierarchy, as expressed in the tables, and that the presence or absence of dissociation may be one of the most valid criteria for determining whether such reversals or shifts have occurred or not.

6.3. In 3.2 meaning on different levels was discussed. It will be remembered that ideally, the student of culture during the early stages of investigation, is concerned only with differential meaning. It was also indicated (5) that the level on which one is working is a function of meaning and vice versa and that in the analysis of micro-culture, one only seeks to discover whether the people of a given culture distinguish between two events or not. He is not concerned with valued meaning at this point in his analysis. However, it would seem, as soon as three or more focal systems intersect, forming a configuration (5.1) of even the simplest sort, that, as a function of this relationship, meaning in the valued sense is achieved. From the points of reference which we hold here, it becomes impossible to distinguish between values and meaning. Values are meaning and vice versa. The values of a culture then become that which is elaborated on the level of meta-culture or the cultural profile on the highest level of analysis.

Taken a step further, if values are implicit in the meta-cultural profiles and modal personality, basic personality structure, national character and the like are also a function of these same profiles, then values = modal personality, etc. = culture[37].

There have been certain trends in social science theory that already point in this direction. For instance, Riesman's types[23] tradition-directed, inner-directed and other-directed, are profiles (lacking content) of formal group-oriented, formal individual-oriented, and technical group-oriented, respectively. For example, tradition directed plus Hopi values = the meaning of Hopi life = Hopi modal personality.

Another treatment, that of Murray and Kluckhohn[35] begins with the following statement: 'A dynamic organismic conception of personality... impeded by the fact that the integrations of processes which constitute personality are hidden...their forms must be inferred from their manifestations in words and other overt actions'. We find the end of this question unexceptionable. The beginning, however, needs re-examination. That which can be inferred from manifestations is not in any sense hidden. The personality is the statement of the manifestations, and these are the characterizations of the processes of integration involved. That is, given analyses of micro-culture and of meta-culture, the personality profiles emerge as the values = meanings = the culture as a whole. If these things were really hidden, they could not, of course, be examined by the scientist. Our whole point in the present paper has been to show that many items of culture thought to be hidden or unknowable are really quite apparent when an adequate frame of reference is created. Sullivan[4] made a great contribution in this field when he took issue with the concept of the unconscious and demonstrated that what formerly was (and still is by many) considered the unconscious is actually dissociation[5]. As such it is knowable and observable.

There remains, of course, much that is unknown. In that sense, we may say that it is hidden. But past experience indicates that it will become observable and known as methodology develops.

7. SUMMARY AND CONCLUSIONS

The present article is a theoretical paper setting forth a hypothesis and methodology for the analysis of culture as a whole and specific cultural systems. It is based on observation of the behavior of man as a mammal and as a member of society and a participant in culture. It deals with the observed behavior and the patterns into which the behavior fits, and presents the whole as a general analytical scheme into which all cultural activities, at all levels of integration and complexity, can be fitted. As the presentation proceeds, suggestions are made as to the historical interpretation of cultural change, and it is indicated that the precision and exactness lacking in much previous work in the social sciences seems to be supplied by the techniques of analysis developed here.

A statement of earlier approaches to the problems dealt with here was followed by a consideration of the biological base of culture, and by identification of the basic foci of cultural behavior. Then we discussed in detail the structuring of culture, presenting tables showing the basic focal systems of culture and the systemic foci of further elaborations. The elaborations were discussed, with examples, and statements of the implications of the relationships shown, and cultural systems were grouped in various ways. There followed an analysis of the integration of culture, showing in detail how formal, informal, and technical systems and aspects of systems could be treated. Then we brought out the nature of the larger sets and configurations in culture, elaborating the theory for the configuration of religion in some detail, with other examples.

Throughout our presentation we have emphasized certain points: culture is firmly based on precultural biological activity; culture is knowable and its basic systems and their basic units can be observed and identified; culture integrates at various levels of complexity, and only by taking into account the nature of these levels, and keeping them strictly apart, can the analyst of culture hope to arrive at a clear picture of what he is dealing with.

Our theory embodies some new relations, but essentially develops further notions already widely accepted as fundamental for analysis in one cultural field—linguistics. The analogy and parallelism of culture as a whole with linguistics is brought out and developed at some length. It is believed to give valuable insight into the nature of culture and the process of analyzing it.

As is the case with any new presentation, there are bound to be errors. Some of our rubrics may be wrong, some may be misplaced. But we believe that the consistency and coherence of the scheme as it developed are guarantees of the essential correctness of our thinking. The details may require adjustment here and there, but we believe the basic system is sound. This suggests both an incentive and a caution. Cultures and parts of cultures should be examined in the light of our scheme, to give the anthropologist practice in handling it and facility in extracting the vast amount of detail that the arrangement calls for. Every such examination should be done with care, to avoid forcing, and any seeming inconsistencies and infelicities should be carefully checked and, if found to persist, should be discussed and presented as the basis for necessary modification of the scheme.

The nature of culture has been shown to be such that a satisfactory analysis can be made only by respecting levels of complexity. A religion, a ceremony, a language, a sentence, a factory, a piece of pottery—these are all items in a culture. But they are items of varying degrees and kinds of complexity. They can be successfully analyzed and described only by determining the basic activities involved in each and stating the sequences and relations of these activities. The establishing of a frame of reference in terms of which such analyses could be made has been our principle purpose.

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To complete this booklet, the 5 fold-out Tables are to be fastened inside the back cover. It is possible to do this in such a way that any one of them can be kept out in plain sight while the booklet is being read, but only if the following instructions are followed carefully. First procure an ordinary office stapler, and a strip of thin tough cardboard (such as Manila folders are made of) $8\frac{1}{2}$ inches (22 centimeters) long and three eighths of an inch (1 centimeter) wide. Lay the booklet open on a table with this page at your left and the inside of the back cover at your right. Place TABLE 1 face down upon the back cover, then TABLE 2 face down upon TABLE 1, then TABLE 3, then 4, and last 5. Bring the edges of all five tables (those edges which would be at the left of each table when spread out to read) even with the edge of the back cover, and place the strip of cardboard there also. Finally, staple through the strip, five thicknesses of chart paper, and edge of back cover. Turning it all face down before staples are inserted will leave the outside flat and the staple ends hidden inside, but this is not essential although it helps to make a neater job.

The exploded-view picture shows only an edgewise view of the booklet's pages, its cover, the five charts, and the cardboard strip. All seven elements shown at the right of this sketch are to be stapled together.

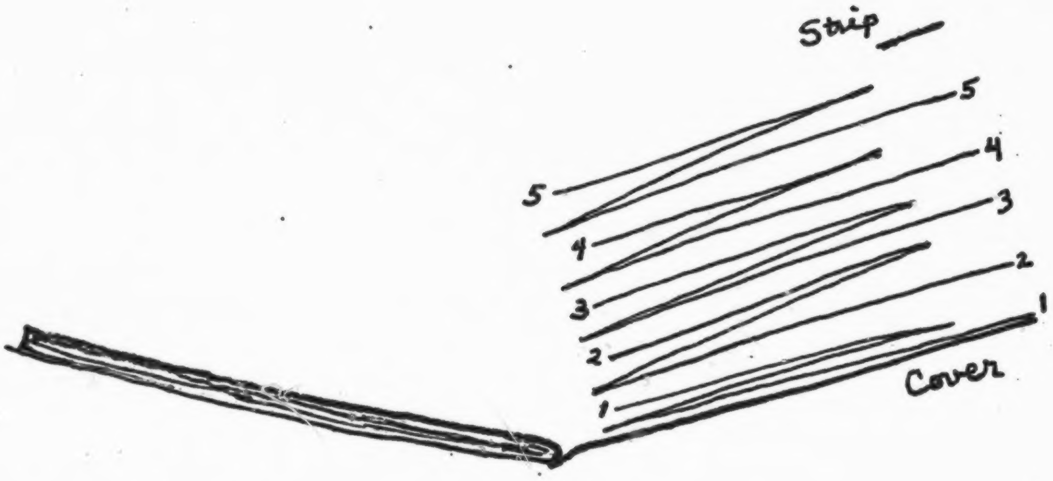
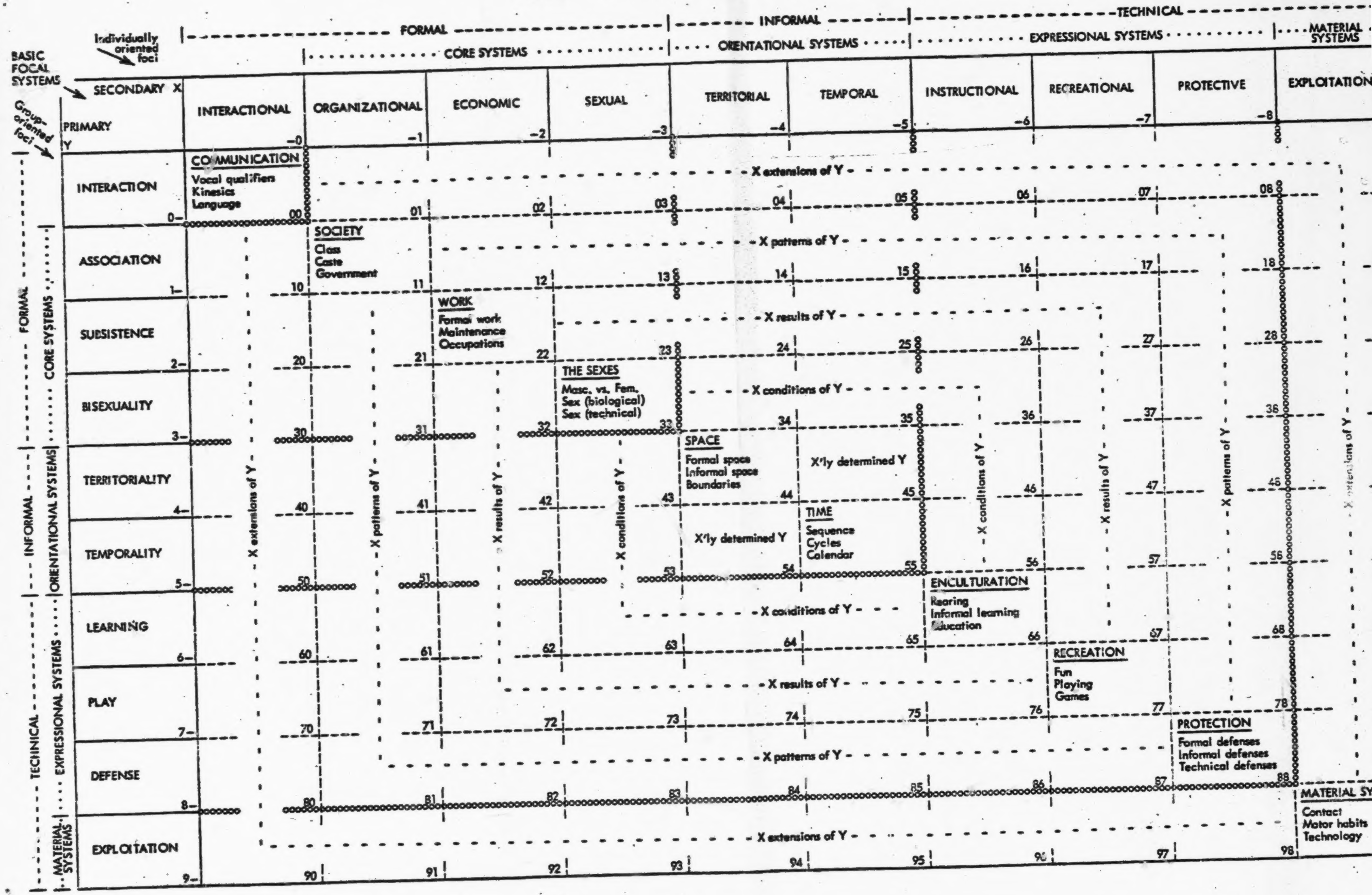


TABLE 1. SYSTEMS OF CULTURE (SCHEMA)


X extensions of Y
X patterns of Y
X results of Y
X conditions of Y
X'ly determined Y

		Individually oriented foci	FORMAL				INFORMAL		TECHNICAL				
				CORE SYSTEMS			ORIENTATIONAL SYSTEMS		EXPRESSIONAL SYSTEMS				MATERIAL SYSTEMS
BASIC FOCAL SYSTEMS	Group-oriented foci	SECONDARY X / PRIMARY Y	INTERACTIONAL –0	ORGANIZATIONAL –1	ECONOMIC –2	SEXUAL –3	TERRITORIAL –4	TEMPORAL –5	INSTRUCTIONAL –6	RECREATIONAL –7	PROTECTIVE –8	EXPLOITATION
FORMAL		INTERACTION 0–	COMMUNICATION Vocal qualifiers Kinesics Language 00	01	02	03	04	05	06	07	08	
FORMAL	CORE SYSTEMS	ASSOCIATION 1–	10	SOCIETY Class Caste Government 11	12	13	14	15	16	17	18	
FORMAL	CORE SYSTEMS	SUBSISTENCE 2–	20	21	WORK Formal work Maintenance Occupations 22	23	24	25	26	27	28	
FORMAL	CORE SYSTEMS	BISEXUALITY 3–	30	31	32	THE SEXES Masc. vs. Fem. Sex (biological) Sex (technical) 33	34	35	36	37	38	
INFORMAL	ORIENTATIONAL SYSTEMS	TERRITORIALITY 4–	40	41	42	43	SPACE Formal space Informal space Boundaries 44	X'ly determined Y 45	46	47	48	
INFORMAL	ORIENTATIONAL SYSTEMS	TEMPORALITY 5–	50	51	52	53	X'ly determined Y 54	TIME Sequence Cycles Calendar 55	56	57	58	
TECHNICAL	EXPRESSIONAL SYSTEMS	LEARNING 6–	60	61	62	63	64	65	ENCULTURATION Rearing Informal learning Education 66	67	68	
TECHNICAL	EXPRESSIONAL SYSTEMS	PLAY 7–	70	71	72	73	74	75	76	RECREATION Fun Playing Games 77	78	
TECHNICAL	EXPRESSIONAL SYSTEMS	DEFENSE 8–	80	81	82	83	84	85	86	87	PROTECTION Formal defenses Informal defenses Technical defenses 88	
TECHNICAL	MATERIAL SYSTEMS	EXPLOITATION 9–	90	91	92	93	94	95	96	97	98	MATERIAL SY Contact Motor habits Technology

TABLE 2. SYSTEMS OF CULTURE (DETAILS)

BASIC FOCAL SYSTEMS		Individually oriented foci	FORMAL				INFORMAL		TECHNICAL				
				CORE SYSTEMS			ORIENTATIONAL SYSTEMS		EXPRESSIONAL SYSTEMS				MATERIAL SYSTEMS
Group-oriented foci		SECONDARY X PRIMARY Y	INTERACTIONAL –0	ORGANIZATIONAL –1	ECONOMIC –2	SEXUAL –3	TERRITORIAL –4	TEMPORAL –5	INSTRUCTIONAL –6	RECREATIONAL –7	PROTECTIVE –8	EXPLOITATIONAL
FORMAL		INTERACTION 0–	COMMUNICATION Vocal qualifiers Kinesics Language 00	Status and Rôle 01	Exchange 02	How the sexes interact 03	Places of interaction 04	Times of interaction 05	Teaching and learning 06	Participation in the arts and sports (active and passive) 07	Protecting and being protected 08	Use of telephones, signals, writing,
	CORE SYSTEMS	ASSOCIATION 1–	Community 10	SOCIETY Class Caste Government 11	Economic rôles 12	Sexual rôles 13	Local group rôles 14	Age group rôles 15	Teachers and learners 16	Entertainers and athletes 17	Protectors (doctors, clergy, soldiers, police, etc.) 18	Use of group property
		SUBSISTENCE 2–	Ecological community 20	Occupational groupings 21	WORK Formal work Maintenance Occupations 22	Sexual division of labor 23	Where the individual eats, cooks, etc. 24	When the individual eats, cooks, etc. 25	Learning from working 26	Pleasure from working 27	Care of health, protection of livelihood 28	Use of foods, resources and equipment
		BISEXUALITY 3–	Sex community (clans, sibs) 30	Marriage groupings 31	Family 32	THE SEXES Masc. vs. Fem. Sex (biological) Sex (technical) 33	Areas assigned to individuals by virtue of sex 34	Periods assigned to individuals by virtue of sex 35	Teaching and learning sex rôles 36	Participation in recreation by sex 37	Protection of sex and fertility 38	Use of sex differen ating decoration and adornment
INFORMAL	ORIENTATIONAL SYSTEMS	TERRITORIALITY 4–	Community territory 40	Group territory 41	Economic areas 42	Men's and women's territories 43	SPACE Formal space Informal space Boundaries 44	Scheduling of space 45	Teaching and learning individual space assignments 46	Fun, playing games, etc., in terms of space 47	Privacy 48	Use of fences and marker
		TEMPORALITY 5–	Community cycles 50	Group cycles 51	Economic cycles 52	Men's and women's cyclical activities 53	Territorially determined cycles 54	TIME Sequence Cycles Calendar 55	When the individual learns 56	When the individual plays 57	Rest, vacations, holidays 58	Use of time-tellin devices, etc.
TECHNICAL	EXPRESSIONAL SYSTEMS	LEARNING 6–	Community lore—what gets taught and learned 60	Learning groups—educational institutions 61	Reward for teaching and learning 62	What the sexes are taught 63	Places for learning 64	Scheduling of learning (group) 65	ENCULTURATION Rearing Informal learning Education 66	Making learning fun 67	Learning self defense and to stay healthy 68	Use of training ai
		PLAY 7–	Community play—the arts and sports 70	Play groups—teams and troupes 71	Professional sports and entertainment 72	Men's and women's play, fun and games 73	Recreational areas 74	Play seasons 75	Instructional play 76	RECREATION Fun Playing Games 77	Exercise 78	Use of recreationa materials (play- thin
		DEFENSE 8–	Community defenses—structured defense systems 80	Defense groups—armies, police, public health, organized religion 81	Economic patterns of defense 82	What the sexes defend (home, honor, etc.) 83	What places are defended 84	The When of defense 85	Scientific, religious, and military training 86	Mass exercises and military games 87	PROTECTION Formal defenses Informal defenses Technical defenses 88	Use of materials for protection
	MATERIAL SYSTEMS	EXPLOITATION 9–	Communication networks 90	Organizational networks (cities, building groups, etc.) 91	Food, resources, and industrial equipment 92	What men and women are concerned with and own 93	Property—what is enclosed, counted, and measured 94	What periods are measured and recorded 95	School buildings, training aids, etc. 96	Amusement and sporting goods and their industries 97	Fortifications, armaments, medical equipment, safety devices 98	MATERIAL SYSTE Contact Motor habits Technology

TABLE 3. F, I, T GROUPINGS. BASIC and RECIPROCAL Focal Systems.

BASIC FOCAL SYSTEMS		Individually oriented foci	FORMAL				INFORMAL		TECHNICAL			
				CORE SYSTEMS			ORENTATIONAL SYSTEMS		EXPRESSIONAL SYSTEMS			MATERIAL SYSTEMS
	Group-oriented foci	SECONDARY X PRIMARY Y	INTERACTIONAL –0	ORGANIZATIONAL –1	ECONOMIC –2	SEXUAL –3	TERRITORIAL –4	TEMPORAL –5	INSTRUCTIONAL –6	RECREATIONAL –7	PROTECTIVE –8	EXPLOITATIONAL –9
FORMAL		INTERACTION 0–	COMMUNICATION Vocal qualifiers Kinesics Language 00	01	02	03	04	05	06	07	08	Use of telephones, signals, writing, etc. 09
	CORE SYSTEMS	ASSOCIATION 1–	10	SOCIETY Class Caste Government fF 11	12	13	iF 14	15	16	tF 17	Protectors (doctors, clergy, soldiers, police, etc.) 18	19
		SUBSISTENCE 2–	20	21	WORK Formal work Maintenance Occupations 22	23	24	25	26	Pleasure from working 27	28	29
		BISEXUALITY 3–	30	31	32	THE SEXES Masc. vs. Fem. Sex (biological) Sex (technical) 33	34	35	Teaching and learning sex rôles 36	37	38	39
INFORMAL	ORENTATIONAL SYSTEMS	TERRITORIALITY 4–	40	fI 41	42	43	SPACE Formal space Informal space Boundaries iI 44	Scheduling of space 45	46	tI 47	48	49
		TEMPORALITY 5–	50	51	52	53	Territorially determined cycles 54	TIME Sequence Cycles Calendar 55	56	57	58	59
TECHNICAL	EXPRESSIONAL SYSTEMS	LEARNING 6–	60	61	62	What the sexes are taught 63	64	65	ENCULTURATION Rearing Informal learning Education 66	67	68	69
		PLAY 7–	70	fT 71	Professional sports and entertainment 72	73	iT 74	75	76	RECREATION Fun Playing Games tT 77	78	79
		DEFENSE 8–	80	Defense groups—armies, police, public health, organized religion 81	82	83	84	85	86	87	PROTECTION Formal defenses Informal defenses Technical defenses 88	89
	MATERIAL SYSTEMS	EXPLOITATION 9–	Communication networks 90	91	92	93	94	95	96	97	98	MATERIAL SYSTEMS Contact Motor habits Technology 99

TABLE 4. GROUPINGS OF SYSTEMS

BASIC FOCAL SYSTEMS		Individually oriented foci	FORMAL				INFORMAL		TECHNICAL			
				CORE SYSTEMS			ORIENTATIONAL SYSTEMS		EXPRESSIONAL SYSTEMS			MATERIAL SYSTEMS
Group-oriented foci		SECONDARY X PRIMARY Y	INTERACTIONAL -0	ORGANIZATIONAL -1	ECONOMIC -2	SEXUAL -3	TERRITORIAL -4	TEMPORAL -5	INSTRUCTIONAL -6	RECREATIONAL -7	PROTECTIVE -8	EXPLOITATIONAL -9
FORMAL		INTERACTION 0–	**COMMUNICATION** Vocal qualifiers Kinesics Language 00	01	02	03	04	05	06	07	08	09
FORMAL	CORE SYSTEMS	ASSOCIATION 1–	10	**SOCIETY** Class Caste Government 11	12	13	14	15	16	17	18	19
FORMAL	CORE SYSTEMS	SUBSISTENCE 2–	20	21	**WORK** Formal work Maintenance Occupations 22	23	24	25	26	27	28	29
FORMAL	CORE SYSTEMS	BISEXUALITY 3–	30	31	32	**THE SEXES** Masc. vs. Fem. Sex (biological) Sex (technical) 33	34	35	36	37	38	39
INFORMAL	ORIENTATIONAL SYSTEMS	TERRITORIALITY 4–	40	41	42	43	**SPACE** Formal space Informal space Boundaries 44	45	46	47	48	49
INFORMAL	ORIENTATIONAL SYSTEMS	TEMPORALITY 5–	50	51	52	53	54	**TIME** Sequence Cycles Calendar 55	56	57	58	59
TECHNICAL	EXPRESSIONAL SYSTEMS	LEARNING 6–	60	61	62	63	64	65	**ENCULTURATION** Rearing Informal learning Education 66	67	68	69
TECHNICAL	EXPRESSIONAL SYSTEMS	PLAY 7–	70	71	72	73	74	75	76	**RECREATION** Fun Playing Games 77	78	79
TECHNICAL	EXPRESSIONAL SYSTEMS	DEFENSE 8–	80	81	82	83	84	85	86	87	**PROTECTION** Formal defenses Informal defenses Technical defenses 88	89
TECHNICAL	MATERIAL SYSTEMS	EXPLOITATION 9–	90	91	92	93	94	95	96	97	98	**MATERIAL SYSTEMS** Contact Motor habits Technology 99

CORE

fF

ORIENTATIONAL

iF*

iI*

fI*

TECHNICAL

tF

tI*

tT

iT*

fT*

TABLE 5. GROUPINGS OF SYSTEMS

BASIC FOCAL SYSTEMS	Individually oriented foci →		FORMAL	FORMAL	FORMAL	FORMAL	INFORMAL	INFORMAL	TECHNICAL	TECHNICAL	TECHNICAL	TECHNICAL
Group-oriented foci ↓				CORE SYSTEMS	CORE SYSTEMS	CORE SYSTEMS	ORIENTATIONAL SYSTEMS	ORIENTATIONAL SYSTEMS	EXPRESSIONAL SYSTEMS	EXPRESSIONAL SYSTEMS	EXPRESSIONAL SYSTEMS	MATERIAL SYSTEMS
		SECONDARY X → PRIMARY Y ↓	INTERACTIONAL –0	ORGANIZATIONAL –1	ECONOMIC –2	SEXUAL –3	TERRITORIAL –4	TEMPORAL –5	INSTRUCTIONAL –6	RECREATIONAL –7	PROTECTIVE –8	EXPLOITATIONAL –9
FORMAL		INTERACTION 0–	COMMUNICATION Vocal qualifiers Kinesics Language 00	01	02	03	04	05	06	07	08	09
FORMAL	CORE SYSTEMS	ASSOCIATION 1–	10	SOCIETY Class Caste Government 11	12	13	14	15	16	17	18	19
FORMAL	CORE SYSTEMS	SUBSISTENCE 2–	20	21	WORK Formal work Maintenance Occupations 22	23	24	25	26	27	28	29
FORMAL	CORE SYSTEMS	BISEXUALITY 3–	30	31	32	THE SEXES Masc. vs. Fem. Sex (biological) Sex (technical) 33	34	35	36	37	38	39
INFORMAL	ORIENTATIONAL SYSTEMS	TERRITORIALITY 4–	40	41	42	43	SPACE Formal space Informal space Boundaries 44	45	46	47	48	49
INFORMAL	ORIENTATIONAL SYSTEMS	TEMPORALITY 5–	50	51	52	53	54	TIME Sequence Cycles Calendar 55	56	57	58	59
TECHNICAL	EXPRESSIONAL SYSTEMS	LEARNING 6–	60	61	62	63	64	65	ENCULTURATION Rearing Informal learning Education 66	67	68	69
TECHNICAL	EXPRESSIONAL SYSTEMS	PLAY 7–	70	71	72	73	74	75	76	RECREATION Fun Playing Games 77	78	79
TECHNICAL	EXPRESSIONAL SYSTEMS	DEFENSE 8–	80	81	82	83	84	85	86	87	PROTECTION Formal defenses Informal defenses Technical defenses 88	89
	MATERIAL SYSTEMS	EXPLOITATION 9–	90	91	92	93	94	95	96	97	98	MATERIAL SYSTEMS Contact Motor habits Technology 99

EMOTIONAL

fF + fI + fT

iF + tF

iI + tI

iT +

SITUATIONAL

FRINGE

END

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